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LITHIUM POISONING FROM THE USE OF SALT SUBSTITUTES

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The purpose of this report is to direct attention to lithium intoxication as a complication of the use of lithium chloride as a salt substitute for flavoring low sodium diets. We shall describe the syndrome as it was observed in 7 cases, in 2 of which the intoxication seems to have been a contributory cause of death. The salt substitute used by these patients was westsal,® which is a solution of lithium chloride with citric acid and a small amount of potassium iodide. That the cause of the intoxication was lithium ion, and not sodium depletion as such, seems evident from a study of these cases, in 1 of which the intoxication was induced as a clinical trial. Nevertheless, the data indicate that sodium depletion, incident to treatment with low sodium diets, increases the susceptibility to intoxication from orally ingested lithium salts.

The suspicion that lithium might be the cause of poisoning in patients deprived of dietary sodium was aroused by events in the first patient to be described. However, in this case, as in the second, the diagnosis is retrospective and presumptive and based on the sequences in the third and succeeding patients observed.

REPORTS OF CASES

Case 1.—The patient was a 70 year old white woman whose primary disease was generalized arteriosclerosis with severe arteriosclerotic heart disease and congestive heart failure. In December 1947 she was placed on a diet containing about 200 mg. of sodium per day. A salt substitute in powder form, consisting principally of potassium and lithium chlorides, was used for flavoring until May 1948, when westsal® was substituted for it. No untoward symptoms appeared until the first week in August 1948, during a hot spell. On August 5 about 20 cc. of the salt substitute was used in the preparation of a stew, which the patient ate with enjoyment. She was seized with giddiness and nausea on the next day and, during the following twenty-four hours, showed mental confusion, apathy and gross tremor of the arms and legs. The deep reflexes were hyperactive. She was admitted to hospital August 7, and became comatose on August 8, with spontaneous gross tremor of the chin, lips, eyelids, arms and leg muscles. Clonus was initiated by tendon tapping. A grasp reflex was present bilaterally. Abdominal reflexes were absent. Hoffman, Gordon and Oppenheimer signs were strongly positive. The Babinski test yielded plantar flexion. Lumbar puncture gave fluid of normal composition, under normal pressure and with normal dynamics.

A neurologic consultant noted, "I have never seen such striking muscular irritability in a cerebral lesion. Strychnine poisoning, tetanus and tetany should be considered." An electroencephalogram on August 9 showed a severe generalized slow dysrhythmia with frequencies of 4 to 6 per second and voltages up to 150 millivolts. A neurologic consultant suggested that such an electroencephalogram and clinical state might result from multiple small cerebral emboli. Treatment meanwhile had been supportive, with phenobarbital for restlessness and fluid balance maintained with intravenous fluids (10 per cent dextrose in water and 5 per cent dextrose in 1 per cent solution of sodium chloride). Serum chloride content was 104 milliequivalents per liter and carbon dioxide–combining power 49 volumes per cent on August 9. Serum potassium at the time was 3 milliequivalents per liter.

By August 11 she had cleared mentally and was taking fluid by mouth; in succeeding days she improved rapidly, and was discharged in good condition on August 14, having at that time amnesia for the week of her illness. She continued well during the next ten days, and resumed her former diet and use of westsal.® Again tremor, confusion and apathy developed; she passed into coma and died on Aug. 27, 1948. An autopsy was not obtained.

Summary.—In an elderly woman under treatment for congestive heart failure which included the use of westsal® and of a low sodium diet, twice during hot summer a syndrome of tremor, muscular and reflex hyperirritability, confusion and coma developed. An electroencephalographic abnormality was demonstrated. The serum potassium was abnormally low. The patient died during the second episode. The diagnosis of lithium intoxication, suspected then by one of us, has been established by the observations in the succeeding cases.

Case 2.—This patient, a 66 year old woman suffering from generalized arteriosclerosis, arteriosclerotic heart disease, osteoarthritis, an anxiety state and an infection of the urinary tract, was not observed during life by any of us. The course of events is therefore summarized from clinical notes in her chart and from the statement of her special nurse. On admission to hospital, Sept. 18, 1948, she was placed on a low sodium diet, and, because she complained of the lack of flavor, was given westsal® on the following day. The notes indicate that she was mentally confused on September 26. The nurse states that she asked for a special nurse because of the patient's confusion and bizarre appearance, blurring of vision, instability in walking and a tremor of the arms which made it difficult to feed herself or to achieve a legible signature, although her appetite was maintained and she is stated to have "bathed" her food in the salt substitute. On October 1 she was unable to walk, even when assisted, and had to be fed. On October 2 she complained of paralysis of the right hand and showed mental lapses, confusion and disorientation. The nurse, thinking that she was overdosing herself with barbiturates, locked her supply away. On October 4 her blood pressure had fallen from the admission level of 170 mm. of mercury systolic and 84 diastolic to 154 systolic and 40 diastolic; on October 5 it was recorded as 70 systolic and 30 diastolic. By that time she was taking fluids only and had passed into a coma from which she was infre-

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quently roused. She showed muscular irritability on being moved and spontaneous tremor. No pathologic reflexes were elicited. The impression was that she had multiple small cerebral emboli or thromboses. She continued in coma with episodes of Cheyne-Stokes respirations and evidences of neuromuscular hyperirritability until death on October 12. She had been sustained between October 7 and 12 on occasional infusions of 5 per cent dextrose, and her restless delirium treated with chloral hydrate and paraldehyde. An autopsy was not performed.

Summary.—A retrospective diagnosis of lithium intoxication is made in the case of an arteriosclerotic patient on a low sodium diet who took an excessive quantity of westsal® for flavoring her food. The course was marked by tremor, mental lapses and terminal coma.

Case 3.—The patient is a Negro man, 47 years of age, whose primary disease is severe essential hypertension. On July 26, 1948, he was placed on a diet containing about 200 mg. sodium daily and began the use of westsal® as a salt substitute, in cooking and on food. For the first four weeks of this regimen, he was given 6 Gm. sodium chloride daily in enteric-coated capsules as a control observation on the effects of low sodium diet. This supplement was withdrawn August 24. He was unable to maintain the desired degree of sodium restriction for the next four weeks. On October 4 he complained of occasional "nervous twitches," which subsided during the following week. He was again unable to maintain his dietary regimen, and the apparent urinary sodium contents varied from 0.6 to 2.2 Gm. per 24 hours. On November 8 he was emphatically counselled to improve his dietary control. He promised to cooperate and, on November 22, apparent urinary sodium was 0.94 Gm. However, he complained that he was able to sleep only for short periods at a time because of muscle twitches and "nervousness." These complaints were not relieved by oral administration of seconal sodium® (sodium 5-allyl-5-[1-methylbutyl] barbiturate), 0.1 Gm., at bed time. Rather, on November 29, gross tremor of his hands and arms developed which was obvious to the members of his family. He was unable to sleep and was despondent, causing his wife concern over his mental status. During the whole period from July he had maintained a steady rate of use of westsal,® averaging 2 two and one-fourth ounce bottles monthly. Apparent urinary sodium was 0.7 Gm. per 24 hours. December 2 he was advised to discontinue westsal® and otherwise to maintain his regimen as before. His symptoms of tremor, apathy and twitching diminished during the next two days and had disappeared when he was seen on December 6. At this time the urinary sodium output was estimated as 0.23 Gm. per 24 hours. This level of urinary sodium output was maintained during the next six weeks. None of the symptoms has returned.

Summary.—A patient suffering from essential hypertension was placed on a low sodium diet supplemented with westsal® and, for the first four weeks, with sodium chloride. Muscle twitches appeared transiently during a period of unsteady dietary control. These, together with insomnia, depression, apathy and fatigue, reappeared three weeks after he had agreed to maintain a severe sodium restriction. These symptoms disappeared four days after discontinuing the use of westsal,® although sodium restriction was continued. It is deemed significant that, with a steady rate of ingestion of lithium chloride, symptoms appeared and progressed only during rigid sodium restriction, although muscle twitches had occurred transiently before.

Urinary sodium was measured colorimetrically from the precipitate obtained with uranyl zinc acetate (Hoffman and Osgood[1]), a reagent which can also be used in the determination of lithium (Woodfin[2]). The drop in apparent urinary sodium content from levels of 0.9 and 0.7 Gm. while using lithium chloride as a salt substitute to levels of about 0.25 Gm. after discontinuing it reflects inclusion of urinary lithium in the analyses for sodium.

The course of events indicated that the use of westsal® as a salt substitute causes toxic symptoms during periods of severe sodium restriction and thus gave grounds for tentative retrospective diagnoses in the first and second patients reported.

Case 4.—A white man, 35 years of age, was admitted suffering from chronic glomerulonephritis with early renal failure (blood urea, 96 mg. per hundred cubic centimeters) Dec. 21, 1948. He had been placed on a low sodium diet containing about 0.5 Gm. sodium on October 8, which he supplemented with westsal® as a flavoring agent. On admission, together with evidences of his primary disease he showed a coarse tremor of the arms which interfered with his feeding himself and complained of blurring of vision. Both symptoms had been present since the end of October. His deep reflexes were hyperactive. Lithium intoxication was suspected and westsal® discontinued. He was given infusions of 5 per cent dextrose in water daily for the next week, at the end of which his blood urea content was unchanged, while his symptoms and reflex hyperexcitability had disappeared. At this time administration of 3 Gm. lithium chloride in 24 hours did not cause the symptoms to recur.

Case 5.—A 51 year old Negro woman suffering from congestive heart failure due to arteriosclerotic heart disease, with other diagnoses of diabetes mellitus, intercapillary glomerulosclerosis and obesity, was admitted to the hospital Jan. 5, 1949. She was placed on a diet estimated to contain 0.5 Gm. sodium daily and given westsal® as a salt substitute. She was also treated with digitalis and mercurial diuretics. On this regimen she lost 16 pounds (7.3 Kg.) in weight in the first week. Discharge from hospital was planned for January 14, on which day twitching of the left hand developed, and by evening she had become mentally confused without specific neurologic signs. On January 15 she was in restless coma. The plasma carbon dioxide-combining power was 48 volumes per hundred cubic centimeters and the serum chloride 93 milliequivalents per liter. She remained comatose and had to be restrained on January 16 and 17, showing also generalized muscular twitching and hyperactive tendon reflexes. The blood urea rose to 140 mg. per hundred cubic centimeters from a level of 60 mg. on admission, an increase in azotemia which was attributed to dehydration. At this time serum chloride was 113 milliequivalents per liter and carbon dioxide-combining power 40.4 volumes per hundred cubic centimeters. When she was seen by one of us on January 20, it was advised that she be given sufficient fluid to maintain a urine output of at least 2 liters daily and that this regimen should include administration of 5 Gm. sodium chloride daily. She was conscious and much improved on January 23 and was discharged from hospital on January 29 with all evidences of the intoxication relieved.

Summary.—In patients 4 and 5, sodium restriction was not as severe as in the others of this series. However, in both there were evidences of impaired renal function and, in patient 5, a negative sodium balance was created by the use of mercurial diuretics. In patient 4, evidences of toxicity from the use of lithium appeared in about three weeks and stabilized at a level of minor annoyance. In patient 5 the intoxication developed suddenly and was very severe. Its greater severity in patient 5 is attributable to the sodium depletion which had been created in this case.

Case 6.—The patient is a 42 year old white man suffering from severe essential hypertension, for which he was placed on a low sodium diet (200 mg. estimated daily sodium content)

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[1] Hoffman, W. S., and Osgood, B.: Photoelectric Method for the Microdetermination of Sodium in Serum and Urine by the Uranyl Zinc Acetate Precipitations, J. Biol. Chem. **124**:347, 1938.

[2] Woodfin, W. C.: The Determination of Lithium, J. A. Off. Agric. Chem. **30**: 482, 1947.

Jan. 29, 1949, and given westsal® as a salt substitute. During the next ten days he consumed the equivalent of about 8.5 Gm. of lithium chloride. On the fifth day he had difficulty in thinking clearly, on the eighth day he staggered slightly on walking and on the night of the tenth day was twice wakened from sleep by atacks of muscle twitching. On examination on the eleventh day he showed coarse tremor of the hands (record *D* in fig. 1) with hyperactive deep reflexes and hyperirritability of facial muscles. Westsal® was discontinued and he was told to take as much sodium chloride as would flavor his food. His symptoms diminished greatly during the next three days, as evidenced by decrease of tremor (record *E* of the figure) and had entirely receded at the end of one week.

Case 7.—The patient is a Negro man, 46 years of age, who suffers from severe essential hypertension and advanced retinal and cerebral arteriosclerosis. After prolonged observation in hospital he was placed on a rice diet (Kempner) on Dec. 8, 1948.

A technical complication of treatment with low sodium diets is shown by the fact that during the next five weeks this patient's urinary sodium averaged about 0.6 Gm. per 24 hours. The source of the extra sodium was found to be a proprietary laxative (mucara®) which he had been taking. When this was withdrawn, urinary sodium levels fell to reach a low of 0.05 Gm. per 24 hours on Jan. 25, 1949.

As a clinical test of the possibility of intoxication with lithium from westsal,® he was given the salt substitute to use on his food on January 28. His plasma carbon dioxide-combining power was 57 volumes per cent and serum chloride 88 milliequivalents per liter at this time. Three days later he complained of weakness and fatigue and showed muscle twitches and tremor of the hands. The total amount of lithium chloride ingested by the fourth day was 4.8 Gm. On this day he walked with a staggering gait, the Romberg sign was positive, the deep reflexes were hyperactive and there was fasciculation of muscles at the site of percussion. He showed a coarse tremor of the arms, even at rest, and spontaneous twitchings of leg muscles. On the fifth day he complained of retarded mentation, loss of memory and uneasy somnolence. All these symptoms and signs increased during the next two days, so that he was prostrate, depressed and confused and unable to walk without assistance. From the fourth to the seventh day inclusive he took only 0.4 Gm. of lithium chloride, so that the total dose in the seven days was 5.2 Gm., when its administration was stopped.

Current in Milliamperes Required for Stimulation of Muscles in Successive Observations on Patient 7

GALVANIC STIMULATION

	Dates			
Muscles	2-3	2-5	2-9	2-15
Right biceps	2	2	4	7
Right flexor ulnaris	1	1	2	6
Right gastrocnemius	7	4	6	5
Left biceps	1	1	2	5
Left flexor ulnaris	2.5	2	4	2
Left gastrocnemius	4	3	8	7

Evidences of intoxication continued unabated on the eighth and ninth days of the test. His condition caused concern, so that on the ninth day he was given intravenously an infusion of 1 liter of 5 per cent dextrose in 1 per cent solution of sodium chloride. On the next day he was mentally clearer, although tremors and hyperactive reflexes were unchanged. Tremor decreased on the eleventh day. On the twelfth day he was able to walk unassisted and showed only minor tremor and reflex hyperactivity. All evidences of intoxication vanished on the eighteenth day after administration of westsal® was begun, which was the eleventh day after it had last been taken.

As objective estimates of the course of the intoxication, neuromuscular functions were tested in three ways. The first test, a record of tremor, is illustrated in figure 1 (tracings *A* and *B*) done respectively on the sixth and the thirteenth day of this observation. The severity of tremor was such that the recorder of vertical movement had to be disconnected in the tracing done February 3. The improvement in tremor is obvious, but its persistence can be seen by comparison of the record of February 12 with the record of a normal person (fig. 1 *C*).

The second estimate was from the galvanic excitability of muscles. This measurement was supplied us by Dr. Shelby G. Gamble. The results of his observations are tabulated (the table).

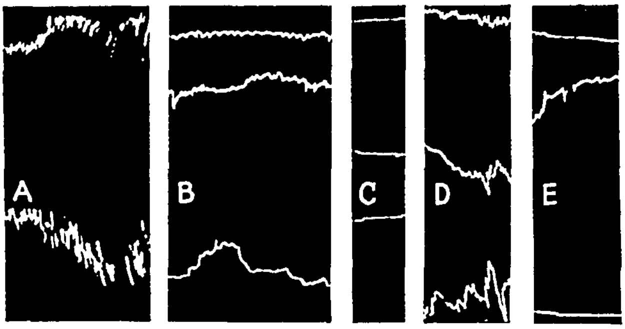

Fig. 1.—Kymograms of finger tremor. Records *A* and *B* were made by patient 7, respectively on Feb. 3 and 10, 1949. Record *C* is that of a normal person. Records *D* and *E* were made by patient 6, respectively on Feb. 9 and 12, 1949.

The third objective estimate was from the electromyographic records (Dr. Edward Zucker) (fig. 2) obtained on the seventh and thirteenth days of intoxication.

COMMENT

In 1913 Dr. S. A. Cleaveland of this city described in The Journal [3] an experiment in lithium intoxication which he performed on himself. He ingested 2 Gm. of lithium chloride after each meal for three meals and one more dose at bedtime, totaling 8 Gm. in the eighteen hours. Three to four hours after the first dose he felt dizziness and fulness of the head. The third dose was followed by blurring of vision, dizziness and tinnitus, generalized weakness and marked tremor. After the fourth dose, dizziness increased and caused sleeplessness. His symptoms persisted so that he remained in bed the next day. Muscular weakness and tremor persisted for five days. He repeated the experiment some months later, when he took 4 Gm. of lithium chloride and experienced dizziness, tinnitus and blurring of vision.

The symptoms presented by our patients are, in order of appearance, tremor, muscle twitches, apathy, difficult mentation, blurring of vision, confusion and, finally, coma and death. Objective evidences are reflex hyperirritability, muscle fasciculation and hyperirritability of muscles to galvanic stimulation. These toxic manifestations are not dissimilar from those experi-

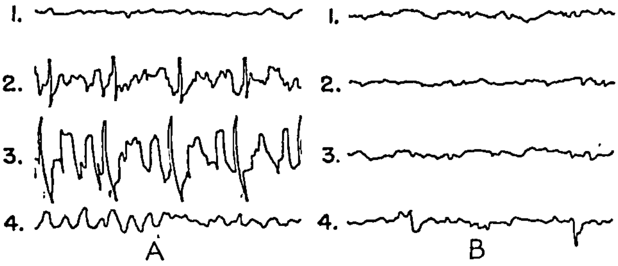

Fig. 2.—Electromyograms (patient 7). *A*, records of Feb. 7, 1949. Muscles tested from above down are (1) left thigh, (2) right anterior tibial, (3) right triceps and (4) left biceps. *B*, records of Feb. 12, 1949. Muscles from above down are left thigh, right anterior tibial, left biceps and right triceps.

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[3] Cleaveland, S. A.: A Case of Poisoning by Lithium, Presenting Some New Features, J. A. M. A. **60**: 722 (March 8) 1913.

enced by Dr. Cleaveland and lead to the conclusion that the intoxication in our patients is due to the action of lithium.

It is noteworthy that in our patients evidences of intoxication appeared on dosages of lithium chloride much less than the dose taken by Dr. Cleaveland in the course of one day. It is therefore likely that sodium restriction increases susceptibility to the toxic action of lithium. This can be attributed to replacement of some of the sodium ions missing from body fluids by lithium. We are not aware of any complete explanation of the metabolic disturbances induced in muscles and nerves by substitution of lithium for sodium, although Runnström[4] has demonstrated the toxic effects of lithium on the development of sea urchin eggs. In normal persons lithium ion is readily absorbed and readily excreted, largely in the urine.[5] The slow recovery from intoxication in patient 7 of our series until sodium was given is further evidence for ionic competition between sodium and lithium and suggests that the treatment of severe lithium poisoning is best accomplished by liberal provision of sodium ion and of water.

SUMMARY

It is evident that the use of salt substitutes as flavoring agents for low sodium diets should not go unsupervised. Some of them contain potassium, which may be toxic to patients with renal insufficiency (Keith and Burchell[6]), as are many patients given the rice diet. The salt substitute, westsal,® which appears to be responsible for toxicity in our patients consists substantially of lithium chloride. Patients on low sodium diets exhibit an increased susceptibility to the toxic effects of lithium, as shown in patient 7, who had severe symptoms from a total dose of only 5.2 Gm. of lithium chloride. In 1 patient, the equivalent of about 4 Gm. of the salt resulted in an illness which, from the descriptions given, was no more severe than the illness from which she died. It is, perhaps, significant that the patients who showed severe manifestations (patients 1, 2, 7) suffered clinically from advanced cerebral arteriosclerosis.

ADDENDUM

G. MASSON, PH.D.

As one of a series of pharmacologic tests of the toxicity of lithium chloride, the effect of sodium restriction and of sodium supplements was examined in rats. The animals averaged 200 Gm. body weight. Two groups of 10 animals each were tested. One group was placed on a low sodium diet consisting of starch, dextrin and casein for three days before beginning the experiment. The other group was on a diet of fox chow and was given 1 per cent sodium chloride solution as drinking water. On the third and succeeding days of the experiment, both groups received by gavage 50 mg. of lithium chloride in 10 cc. of water. In the case of the sodium-containing diet group, 100 mg. of sodium chloride was added to the lithium chloride solution given by gavage.

Animals given lithium chloride only and deprived of sodium lost appetite during the first twenty-four hours and showed roughening of their fur. By the third day of treatment with lithium chloride, 3 animals had died in this group, and all but 1 had died by the end of the fourth day. Before dying, these animals became irritable and showed diffuse muscle tremors spontaneously and on stimulation.

In contrast, rats given the sodium chloride supplements remained in good condition.

The data, which fit in well with the clinical studies reported, indicate toxicity of lithium chloride in rats given low sodium diets and a definite protection against lithium by the provision of supplementary sodium.

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[4] Runnström, J.: Analysis of the Effect of Lithium on Sea-Urchin Development, Biol. Bull. **68:** 379, 1935.

[5] Kent, N. L., and McCance, R. A.: The Absorption and Excretion of "Minor" Elements by Man: I. Silver, Gold, Lithium, Boron and Vanadium, Biochem. J. **35:** 836, 1941.

[6] Keith, N. M., and Burchell, H. B.: Clinical Intoxication with Potassium, Am. J. M. Sc. **217:** 1, 1949.

LITHIUM CHLORIDE AS A SUBSTITUTE FOR SODIUM CHLORIDE IN THE DIET

Observations on Its Toxicity

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In view of the increasing emphasis on restriction of sodium intake in the management of cardiac decompensation and other conditions, a harmless substitute for salt in the seasoning of food has been widely sought and is much to be desired. Recently a 25 per cent solution of lithium chloride, which has a taste similar to table salt, has been made commercially available. Although there are in the older literature scattered records suggesting that ingestion of inorganic lithium salts may cause weakness, tremors and blurring of vision, the solution has been marketed with the assurance of the distributors that it is "perfectly safe," but they recommend that it be used only under the supervision of a physician. Our acquaintance with lithium began in the last two months of 1948, when we undertook the study of the absorption, distribution and excretion of lithium chloride as part of a long range investigation of electrolyte patterns in patients under treatment for heart failure. In the preliminary phase of the work the possibility of serious toxicity from the drug was brought to our attention by the cases presented in this report.

REPORTS OF CASES

Case 1.—The patient, C. D., was a 58 year old white man, a rock driller for thirty years, who had arteriosclerotic heart disease and pulmonary emphysema and fibrosis. He was first treated for cardiac decompensation in 1944 and from June until September 1948 was observed at Bellevue Hospital during a recurrence of heart failure. A month at home with digitalis, low salt diet and mercurial diuretics ended in severe failure that required his readmission in October. At that time examination revealed pronounced cardiac enlargement, rales in both lungs, a greatly enlarged liver and extensive peripheral edema. No abnormal neurologic signs were discovered. The venous pressure was 180 mm. of saline solution and sodium dehydrocholate circulation time was 36 seconds. The blood urea nitrogen was 53 mg. per hundred cubic centimeters and the total serum protein was 6.9 Gm. per hundred cubic centimeters.

The patient was placed on a management consisting of bed rest, low salt diet and meralluride (mercuhydrin®) 2 cc. intramuscularly daily. Because of coupled rhythm digitalis was discontinued until the seventh hospital day. On the fifth day

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of observation quinidine sulfate, 0.2 Gm. every six hours, was started and two days later the premature contractions had disappeared. There was, however, no improvement in the signs or symptoms of failure.

On the tenth hospital day he was given a rice diet and daily mercurial diuretics were continued. After twenty-six days on this regimen he had lost 53 pounds (24 Kg.) and felt markedly improved. Signs of cardiac failure had disappeared, the venous pressure and circulation time were within normal limits and the blood urea nitrogen had fallen to 19 mg. per hundred cubic centimeters. Mercurial diuretics were discontinued on the thirty-seventh hospital day.

On the fifty-first hospital day the patient was given lithium chloride and instructed to season his food with it. He found this substance a pleasant substitute for salt and used it liberally. In about three days he had ingested approximately 13 Gm. On the morning of the third day after lithium was begun he complained of generalized weakness but no other symptoms. The following morning the weakness had increased so that he was unable to hold his eating utensils. He complained that his head was "reeling," and a coarse tremor was present on extension of his hands. He was anorexic and nauseated, but did not vomit. Lithium was discontinued. During that day the weakness increased and he slept excessively. Deep tendon reflexes had become slightly hyperactive, but no other pathologic reflexes were present.

TABLE 1.—*Changes in Blood and Urine During Administration of Lithium in Case 1*

Blood

	MEq./L.					Mg./100 Cc.			
Date	Na	K	Li	Cl	CO$_2$ Comb. Power	Ca	Urea	Hct.	Comment
Dec. 17	138	4.4	0.2*	102	28.8	....	15.7	45.5	
Dec. 18	...	...	...	...	....	....	....	....	Lithium chloride started
Dec. 19	...	...	...	...	....	....	....	....	Lithium chloride
Dec. 20	134	4.8	3.7	108	28.4	....	17.5	45.0	Lithium chloride
Dec. 21	131	4.3	4.8	110	24.9	....	17.8	44.0	Lithium chloride stopped
Dec. 22	132	4.4	3.4	109	24.3	....	15.4	46.5	
Dec. 23	133	4.1	2.6	112	23.2	10.8	15.2	56.0	Mercurophylline, 1 cc.
Dec. 24	...	...	3.0	114	19.4	....	....	56.0	
Dec. 23	Cerebrospinal fluid—lithium 1.5 mEq./L.								

Urine

			Total MEq. per 24 Hours				
Date	Volume, Cc.	Specific Gravity	Na	K	Li	Cl	Comment
Dec. 17	2,490	1.007	40.6	65.5	....	37.8	
Dec. 18	1,685	1.007	51.8	56.8	9.8	27.0	Lithium chloride
Dec. 19	1,515	1.007	63.6	49.7	19.6	43.0	Lithium chloride
Dec. 20	1,000	1.009	48.8	31.0	22.8	46.2	Lithium chloride
Dec. 21	1,155	1.008	57.7	29.3	28.0	67.0	Lithium chloride
Dec. 22	240	1.011	12.8	6.0	5.2	14.9	
Dec. 23	1,620†	.....	....	....	....	....	Mercurophylline, 1 cc.
Dec. 24	Incontinent						

* Lithium was determined with a Perkin-Elmer Flame Photometer, Model 52A. Normal blood plasma in a 1:10 dilution causes a meter deflection on this machine equivalent to as high as 0.5 milliequivalent per liter of lithium. This may be due in part to interference from sodium and potassium.

† Part of the urine for this day was measured and discarded through error before electrolyte concentrations were determined. In the urine excreted subsequently the concentrations were approximately the same as on the previous day.

On the next day (five days after starting and one day after discontinuing lithium) the symptoms were worse. He was extremely lethargic and slept continuously, but could be aroused. His pulse was 78 and regular, his blood pressure was 136 systolic and 66 diastolic. Muscular weakness was generalized; the muscles of the extremities were flaccid at rest. A coarse tremor was present on movement and there were spontaneous fascicular twitchings and spasms of clonic contractions of large muscle groups of the trunk and all extremities. The deep tendon reflexes remained hyperactive. An electrocardiogram revealed no significant change from a series of previous records.

Six days after lithium was begun and two days after it had been stopped he had become confused and disoriented. There was a continuous, coarse, nonrhythmic and nonoscillating tremor of all the extremities. The deep tendon reflexes were unchanged, but gentle tapping of any muscle caused a clonic contraction of the associated muscle group. The plantar responses were normal. The pulse was 136 and regular and the blood pressure was 156 systolic and 100 diastolic. Throughout the day he had drenching sweats. At noon he was given 450 cc. of 5 per cent dextrose in isotonic sodium chloride solution because the plasma sodium level was low. The infusion was discontinued because pulmonary edema began to develop. He was given mercurophylline 1 cc. intravenously, and in several hours the pulmonary edema had cleared appreciably. Thereafter, a slow infusion of 2,000 cc. of 5 per cent dextrose in water was well tolerated. Later in the day he became comatose. An electrocardiogram revealed intraventricular heart block which disappeared several hours later.

The following day (seven days after lithium was begun and three days after it was discontinued), the patient remained comatose. His temperature was 102 F., his blood pressure had fallen to 70 systolic and 50 diastolic, and his pulse was 108 and regular. Respirations were deep and regular, 28 per minute. The tremor had decreased. The skin was moist and warm. Because the carbon dioxide–combining power had been falling steadily he was given 275 cc. of 1.7 per cent sodium bicarbonate solution and 3,000 cc. of 5 per cent dextrose in water intravenously. No significant change was noted in his clinical condition. The following morning tracheal rales developed, and he died shortly thereafter. Permission for autopsy was not granted.

The results of the study of electrolytes in this patient during the period of lithium administration are shown in table 1.

The patient received approximately 13.0 Gm. of lithium chloride in seventy-two hours. The highest blood level of lithium was 4.8 milliequivalents per liter on the day lithium chloride was discontinued. Three days later, one day prior to death, the blood level was 3.0 milliequivalents per liter. A total of 4.15 Gm., approximately 40 per cent of the lithium chloride administered, was recovered in the urine, including that excreted for two days after the last dose.

We are of the opinion that the toxic effects of the excessive amount of lithium chloride ingested by the patient contributed to, if they did not actually cause, his death. Although he was already ill with a serious cardiac disease, his rapid downhill course began after the administration of lithium chloride and the only new symptoms were similar to those attributed in other patients to lithium toxicity. When he became comatose and was unable to take fluids by mouth his low cardiac reserve and tendency to pulmonary edema interfered with appropriate treatment.

This patient presented the first indication of dangerous toxicity. We had, however, suspected some toxic action from our experiences in cases 2 and 3. Case 4 was brought to our attention by one of the visiting physicians.

CASE 2.—A. C., a 60 year old white man, a chronic alcoholic addict, was admitted to Bellevue Hospital in August 1948 because of swelling of the abdomen, peripheral edema and exertional dyspnea of three weeks' duration. Physical findings and the results of laboratory investigation were consistent with a diagnosis of cirrhosis of the liver. During his first forty-three hospital days he received a regular ward diet without added salt and with vitamin supplements. From the second to the fourteenth hospital day the patient used a 25 per cent solution of lithium chloride as seasoning on his food, ingesting a total of 17 Gm. of the salt in thirteen days. On the fourth hospital day 30 pounds (13.6 Kg.) of ascitic fluid was removed by abdominal paracentesis. While receiving lithium he complained of moderate generalized weakness and fatigue. However, during this period fluid was draining copiously from his paracentesis wound with resulting loss of sleep.

During this first period of lithium chloride administration about 37 per cent of the lithium ingested over the thirteen day period was recovered in the urine. The amount of lithium chloride excreted in the urine per 24 hour period varied from 0.25 to 1.26 Gm. Two days after lithium was started there was an insufficient concentration of it in the plasma and ascitic fluid to be detected by the flame photometer. During this period there were no significant changes in the plasma levels of chloride, sodium or potassium. The plasma carbon dioxide-combining power fell from 54 to 36 volumes per cent.

On the forty-third hospital day he was started on a diet containing approximately 2 Gm. of sodium chloride. From the fifty-fifth to the seventieth hospital day he received lithium chloride, 1 Gm. in a glass of water three times daily after meals. He ingested a total of 43 Gm. in sixteen days. During this time he complained of moderate weakness and fatigability. He was drowsy and slept during most of the day. These symptoms gradually disappeared after lithium was discontinued.

During this second period on lithium abdominal paracentesis was repeated. Only 350 cc. of fluid was obtained, but it continued to drain from the wound and he lost 43 pounds (19.5 Kg.) in the next four days. There was no change in his symptoms during this time. During this period of study 46 per cent of the lithium ingested over the sixteen days was recovered in the urine, including measurable amounts excreted for seven days after lithium intake was stopped. Traces could still be detected in the urine eleven days after administration was discontinued. The highest concentration detected both in plasma and ascitic fluid was 2.2 milliequivalents per liter, eight days after lithium was started. On the fifth day after stopping the drug by mouth there was 1.0 milliequivalent per liter in the plasma. There was no appreciable change in blood or plasma specific gravity, hematocrit, blood urea nitrogen, carbon dioxide-combining power, or plasma levels of sodium, potassium and chloride during this period.

CASE 3.—This patient, I. B., was a 60 year old white man who entered the hospital because of an acute, posterior myocardial infarction. His recovery from the infarct was uneventful and he was discharged on the seventy-fourth hospital day. He was treated with bed rest and a regular ward diet.

Lithium chloride was given to him from the twenty-eighth to the thirty-fourth hospital day in order to study its concentration in the plasma, its urinary excretion and any toxic symptoms. The dosage given was 1 Gm. in water two or three times daily after meals, to a total of 16 Gm. in seven days.

After receiving the lithium chloride for two days, he complained of dryness of the mouth and drowsiness. This latter increased in severity until the drug was discontinued. On the fifth day he complained of nausea, fatigue, marked weakness of the hands and blurring of vision. On the sixth day there was a coarse tremor of his hands which increased with movement. The drug was discontinued the next morning. The blurring of vision and tremor had disappeared by the second day. About five days later all symptoms coincident with administration of the drug had disappeared.

While he was receiving lithium there was a diminution of daily urine volume, probably due to the decrease in fluid and food intake resulting from the anorexia and nausea. Lithium was still being excreted in the urine five days after its administration had been discontinued. Of the 16 Gm. of lithium chloride ingested during seven days, 92 per cent had been excreted in the urine during the twelve day period. The highest plasma lithium level observed was 3.3 milliequivalents per liter on the fifth and last day of its use. Two days later the level was 2.3 milliequivalents per liter.

During the time he was receiving lithium there was no significant change in the plasma specific gravity, blood urea nitrogen, plasma chlorides or plasma carbon dioxide-combining power. The blood specific gravity increased from 1.0615 to 1.065, and the hematocrit reading from 49 to 53.5, probably because of decreased fluid intake.

CASE 4.—The following is a case report of a patient who was treated outside the hospital by several different physicians. His private physician has given us permission to report the following data.

A 60 year old white man with arteriosclerotic and hypertensive cardiovascular disease who had been in severe chronic heart failure for two years used 50 Gm. of lithium chloride on his food over a hundred and fourteen day period. He was managed in his home with digitalis, frequent injections of mercurial diuretics and restricted sodium chloride intake. About two weeks after beginning the use of lithium chloride he began to notice lethargy and irregular tremors of his hands, worsened by movement. Four weeks later tremors involved all extremities, speech was slurred, and tapping the face to elicit a Chvostek sign caused contraction of all the muscles of that side of the face and neck. Weakness was so severe that the patient was bed ridden. Serum electrolyte studies revealed a sodium level of 119.5 milliequivalents per liter; chloride, carbon dioxide-combining power, calcium and potassium levels were normal. Because of the low serum sodium his sodium chloride intake was increased. Within two weeks the serum sodium had risen to 133 milliequivalents per liter, with slight improvement of the tremor but no change in the weakness. During the next six weeks he was seen in consultation by numerous competent physicians and various medications were given: calcium gluconate and hypertonic glucose intravenously, numerous vitamin preparations, triple potassium salts, diphenhydramine hydrochloride, belladonna alkaloids, alcohol and barbiturates—all to no avail. Finally, lithium chloride was discontinued. For three days the tremor became worse. Thereafter, the weakness and lethargy rapidly disappeared. At the end of ten days there was only a faint trace of tremor when performing skilled acts.

SURVEY OF THE LITERATURE

In the middle of the last century lithium was popular as a treatment for gout until it was shown to be of little value.[1] It is rapidly absorbed after oral or parenteral administration and is widely distributed in body tissues.[2] Good[1] found higher concentrations of it in muscle than in liver. Others found that it appeared in the cerebrospinal fluid only after three days.[3] Excretion is principally in the urine, but small amounts are found in the feces and saliva.[4]

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1. Good, C. A.: An Experimental Study of Lithium, Am. J. M. Sc. **125:** 273, 1903.
2. Good.[1] Fox, H. M., and Ramage, H.: Spectrographic Analysis of Animal Tissues, Proc. Roy. Soc. Med. (ser. B) **108:** 157, 1931; Biol. Abstr. 1932, no. 21874.
3. Oberhard, I. G., and Sserafimow, B. N.: Zur Untersuchungsmethodik der "meningealen Permabilität" für Jodsalze, Ztschr. f. d. ges. Neurol. u. Psychiat. **147:** 505, 1933; Biol. Abstr. 1936, no. 5807.
4. (*a*) Good.[1] (*b*) Kent, N. L., and McCance, R. A.: Absorption and Excretion of Minor Elements in Man, Biochem. J. **35:** 837, 1941. (*c*) Cushny, A. R.: A Textbook of Pharmacology and Therapeutics, ed. 9, Philadelphia, Lea & Febiger, 1928, p. 557.

A number of toxic effects have been ascribed to lithium,[5] involving the central nervous system, the gastrointestinal tract and the heart. Kolipinski[6] has recorded 2 cases of toxicity in human beings after the ingestion of lithia tablets (he fails to give the dose). He described general prostration, muscular weakness of a degree to impair locomotion and a constant fine tremor of the hands. Both patients recovered three to five days after stopping the drug. Cleaveland[7] recorded his own experiences after taking 8 Gm. in 2 Gm. doses over twenty-eight hours. Three to four hours after the first dose he noted slight fulness of his head and dizziness. Shortly following the third dose his vision became so blurred he was able to read only the largest headlines of a newspaper. Dizziness and tinnitus were marked. He experienced great general weakness and severe tremor. Vertigo was present. The following morning the weakness and tremor were so intense that he began to stagger and was forced to retire to his bed. The eye and ear symptoms persisted for about one and one-half days, and the weakness and tremor for five days after the last dose. Several months later he repeated this experiment using smaller doses and experienced similar but less marked symptoms.

TABLE 2.—*Summary of Toxic Symptoms and Lithium Plasma Levels and Excretion in 4 Cases*

Case	Patient	Highest Plasma Concentration, MEq./L.	Amount Ingested: Total Gm.	Amount Ingested: Days	Amount Ingested: Average Daily, Gm.	Amount Excreted in Urine: Gm.	Amount Excreted in Urine: Percentage	Symptoms of Toxicity
1	C. D.	4.8	13	3	4.3	5.2	40	Drowsiness, weakness, tremor, anorexia, nausea, neuromuscular irritability
2	A. C. (1st)	...	17	13	1.3	6.3	37	Slight weakness and drowsiness
	A. C. (2d)	2.2	43	16	2.7	19.8	46	Moderate weakness and drowsiness
3	I. B.	3.3	16	7	2.3	14.7	92	Weakness, tremor, drowsiness, anorexia, nausea, blurring of vision
4	......	...	53	114	0.5	....	..	Drowsiness, weakness, tremor, neuromuscular irritability

Other investigators have noted the central nervous system manifestations of lithium toxicity. Cushny[4c] spoke of a "depressant action on the motor nerves." Wood,[5f] discussing Binet's work with mammals, mentioned feebleness, convulsions, paralysis of the peripheral nerves and affection of the muscles evidenced by peculiar fibrillary contractions, followed by death. He stated in his book,[5e] "In 20 grain doses I have seen it produce severe general prostration, amounting almost to general paralysis, in a feeble adult female, but have given it very largely to other patients without inducing any constitutional symptoms."

Lithium has been shown to cause gastrointestinal symptoms—nausea, vomiting and diarrhea—in cats. Although older textbooks stress these as prominent symptoms in human toxicity,[8] neither Menzani[9] nor Cleaveland[7] noted any such effects after taking the drugs themselves.

Frequent statements can be found in the older literature that lithium salts depress the heart's action, cause a fall in blood pressure, weaken contraction and cause arrest in diastole,[10] but experimental work on this phase of lithium metabolism is both scanty and inconclusive.

The well known effects of lithium on the embryologic development of lower animals were discussed by Needham.[11] MacLeod[12] has demonstrated that low concentrations of lithium produce a decided reduction of the glycolytic activity and motility of human spermatozoa suspended in Ringer's solution. He suggested the possibility that interference with glucose metabolism in the muscles may be the mechanism by which lithium produces muscular weakness.

COMMENT

Our main purpose in presenting these cases is to bring attention to the possibility of severe toxic effects which may be caused by the ingestion of lithium chloride.

The dosage used, the plasma levels, the amount excreted, and the toxic symptoms are summarized in table 2. In each of the five periods of study in 4 patients symptoms of toxicity were observed. All patients complained of weakness and drowsiness. Although patient 2 and patient 3 received approximately the same daily dose the symptoms were far more severe in patient 3. The plasma concentration of lithium was higher in the latter patient. It is possible that these findings may be partially explained by the trapping of lithum in the large volume of extracellular fluid (ascites and edema) present in patient 2. Patient 1 took the largest average daily dose, had the highest plasma concentration and manifested the most severe symptoms.

In the patients presented the only gastrointestinal symptoms were nausea and anorexia in patients 3 and 1. In patient 3 the nausea immediately followed ingestion and may have been due to local irritation. Patient 1 ingested far more than patients ordinarily use to season their food. We have not observed definite evidence of effect on the heart. The principal symptoms observed seem to indicate an effect on the nervous system, muscles or both. We have found lithium present in significant concentration in the cerebrospinal fluid, and Good has demonstrated its presence in large amounts in muscle. Further work seems necessary to determine the mechanism by which lithium produces these effects. The meager data presented in tables 1 and 2 do not justify any extensive conclusions. However, we feel that these data are perhaps suggestive that lithium is more slowly excreted in patients who have impaired renal function due to cardiac failure or cirrhosis with ascites, as in cases 1, 2 and 4. Patient 3, who had no evidence of disordered renal function, excreted a much higher percentage than the others. It should be pointed

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5. (*a*) Good.[1] (*b*) Cushny.[4c] (*d*) Hare, H. A.: A Textbook of Practical Therapeutics, ed. 13, Philadelphia, Lea & Febiger, 1909, p. 326. (*e*) Wood, H. C.: A Treatise on Therapeutics Comprising Materia Medica, and Toxicology ed. 3, Philadelphia, J. B. Lippincott Company, 1879, p. 496. (*f*) Wood, H. C.: Therapeutics: Its Principles and Practice, ed. 12, Philadelphia, J. B. Lippincott Company, 1905, p. 695.

6. Kolipinski, L.: Notes on Some Toxic Effects from the Use of Citrate of Lithium Tablets, Maryland M. J. **40:** 1898-1899.

7. Cleaveland, S. A.: A Case of Poisoning by Lithium, J. A. M. A. **60:** 722 (March 8) 1913.

8. Cushny.[4c] Hare.[5d] Wood.[5f]

9. Menzani, G.: Lithium and Alkali Exchanges, Arch. ital. Sc. farm. **3:** 45, 1934, Biol. Abstr. 1936, no. 5918.

10. Good.[1] Cushny.[4c] Wood.[5f]

11. Needham, J.: Biochemistry and Morphogenesis, London, Cambridge University Press, 1942.

12. MacLeod, J.: The Problem of Fertility, edited by Earl T. Engle, Princeton, N. J., Princeton University Press, 1946, p. 154; personal communication to the authors.

out that in none of these patients was the urine followed long enough to determine the total amount of lithium eventually excreted. More investigation will be required to determine the rates of absorption and excretion, and the correlation between plasma levels and toxic manifestations.

We have seen a number of patients who have used small amounts of lithium chloride as a salt substitute without harmful effects. However, our experience with case 1 well emphasizes the danger that patients on a low sodium diet may use dangerously large amounts of lithium to satisfy their craving for salt. This case also illustrates the difficulty of counteracting the toxic manifestations in an already severely ill patient. It must be admitted that we do not know how to hasten excretion of lithium from the body or to counteract its toxic effects.

Case 1 illustrates the picture of acute toxicity. Case 4 shows how insidiously the symptoms of chronic toxicity may develop in a patient taking small doses over a long period of time.

SUMMARY AND CONCLUSIONS

Four cases are presented in which lithium chloride caused toxic symptoms — drowsiness, weakness and generalized tremors. The death is reported of a patient in a precarious state of cardiac compensation who showed severe toxic effects following the ingestion of excessively large amounts of lithium chloride with his diet.

Review of the literature reveals that very little work has been done on the pharmacology of lithium in recent years, and its effects on the various metabolic processes are poorly understood.

Caution should be used in prescribing lithium, especially for those patients on a low sodium diet who might use it in excessive quantity. Patients using lithium should be carefully watched for the development of both acute and chronic toxic manifestations.

EDITORIAL NOTE

Lithium is one of the chemical elements belonging to the group called the alkali metals of which sodium and potassium are best known. It was first discovered in 1817. Lithium is the lightest and most reactive metal known and has physical and chemical properties which are similar to sodium and potassium, but the lithium atom differs from the atoms of other alkali metals in weight and size. The name is derived from the Greek word for stone, and lithium was so called because it was considered never to be present in plant and animal matter. However, it does occur in both in minute amounts.

The salt, lithium chloride, has a molecular weight somewhat lower than that of sodium chloride, and it occurs as white, deliquescent crystals. Any toxic effect from lithium preparations is probably not due to the salt as such but to the lithium ion itself.

Lithium can be identified in body tissues and fluids. Lithium compounds show a characteristic crimson-colored flame, and lithium chloride is readily separated from similar alkali chlorides by differential solubilities in higher alcohols. This allows the separated lithium chloride to be analyzed by standard procedures.

Lithium chloride is commonly present in carbonated beverages and in mineral waters in a highly diluted solution. It has also been used in pyrotechnics, as a dehumidifying agent for refrigerant systems, and for soldering aluminum.

The preparation westsal® is a solution of which the composition was found by the American Medical Association Chemical Laboratory to be approximately:

Lithium chloride	25.0 per cent
Citric acid	0.2 per cent
Potassium iodide	0.01 per cent

—Ed.

RHEUMATOID SPONDYLITIS

Its Early Diagnostic Features and Management

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Charlotte, N. C.

Rheumatoid arthritis of the spine is a commonly encountered cause of backache, especially that occurring among male patients of the second and third decades of life. The disease is characterized by periods of active symptoms which alternate with periods of partial or complete freedom from discomfort. After a variable number of years (average fifteen to twenty-five) the process becomes permanently inactive. The end result of the disorder is the production of the so-called "poker spine."

In the evolution of the current concept of rheumatoid arthritis of the spine many synonyms are still in use. The varied terminology serves to confuse one not thoroughly familiar with the fact that involvement of the sacroiliac joints and lumbosacral, dorsal and cervical levels of the spine represents the usual progression of one and the same disease—rheumatoid spondylitis. Synonyms frequently encountered in the literature are Marie-Strümpell's disease, spondylitis ossificans ligamentosa of Knaggs, von Bechterew's syndrome, ankylosing spondylitis, adolescent or juvenile spondylitis, spondylitis ankylopitica and spondylarthritis. The designation for this disease which is recommended by the American Rheumatism Association is "rheumatoid spondylitis."

INCIDENCE

Sex.—Existing reports stress the disparity in incidence of rheumatoid spondylitis in the two sexes.[1] Herrick and Tyson recognized 10 cases (8 male and 2 female patients) during a period of five years. An incidence of 0.2 per cent of all new patients. Hare reported 21 cases (19 male and 2 female patients) among 1,179 cases of arthritis during a two year period at the Lahey Clinic. Polley and Slocumb reported 1,035 cases (931 male and 104 female patients) from 1935 to 1943, inclusive, at the Mayo Clinic.

Fletcher[2] reported a higher incidence in female patients than most observers. He studied 68 patients, 32 of which were female.

I have recognized the disease in 32 patients, an incidence of 4.9 per cent of all new patients during a two year period in private practice, 12 of whom were female. The sex incidence of total new patients seen was approximately the same. Obviously, this series of patients is too small for the data presented to be of statistical significance and is contrary to that of most observers. However, I do not feel that I have been too ambitious in making the diagnosis in women; the criteria for diagnosis have been strictly observed.

Military.—Rheumatoid spondylitis was found to be a fairly common cause of backache among young adult

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Read before the Section on General Practice at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

[1] (a) Herrick, W. W., and Tyson, T. L.: The Medical Aspect of Ankylosing Spondylitis (Marie-Strümpell), Ann. Int. Med. **15**: 994-1001, 1941. (b) Hare, H. F.: Diagnosis of Marie [illegible] Certain Aspects of Treatment, New England [illegible] 1940. (c) Polley, H. F., and Slocumb, C. H. [illegible] A Study of 1,035 Cases, Ann. Int. Med. **26**: [illegible] Hench, P. S.; Slocumb, C. H., and Polley, H. F.: Rheumatoid Spondylitis: Questions and Answers, M. Clin. North America **31**: 879-906 (July) 1947.

[2] Fletcher, E.: Ankylosing Spondylitis, Lancet **1**: 754 (June 10) 1944.

soldiers in both World War I[3] and World War II.[4] In one Army General Hospital in World War II, 7.5 per cent of all patients admitted to the medical service with complaints referable to the musculoskeletal system and 18 per cent of those admitted with chronic back complaint proved to have rheumatoid spondylitis.[4a]

There were 1,084 cases of rheumatoid spondylitis in 6,000 consecutive admissions to the Army Rheumatism Center, Army and Navy General Hospital, during a period of two years.[5] These comprised 18.1 per cent of patients with all types of rheumatic diseases. There were 779 with spondylitis alone and 305 with spondylitis plus peripheral joint involvement. There were 1,127 patients with peripheral rheumatoid arthritis alone. These data reveal that approximately 1 out of every 5 patients admitted to this institution had rheumatoid spondylitis and approximately one half of all patients with rheumatoid arthritis (2,211) had spondylitis (1,084), with and without peripheral joint involvement. Moreover, nearly as many soldiers were admitted with spondylitis as were admitted with peripheral rheumatoid arthritis alone. These figures differ greatly from those in reports based on civilian practice.

The relatively high incidence of the disease in soldiers has been explained by (1) the preponderance of males at an age group for which the disease has a predilection and (2) the influence of strenuous activity and adverse living conditions in bringing to light cases of mild and early disease, including previously present but undiagnosed conditions in many.[4a]

Civilian.—In contrast to the incidence of this disease reported among soldiers, the ratio of peripheral rheumatoid arthritis to rheumatoid spondylitis among members of the civilian population has been variously reported as 11 to 1, 13 to 1 and 19 to 1.[6] The reason for this disparity has not been clearly shown. It may be that a consideration of members of the civilian population engaged in pursuits similar to that of military personnel would result in a ratio more comparable to that encountered among soldiers.

PATHOLOGIC ASPECTS

Rheumatoid spondylitis is a chronic, usually progressive, inflammatory disease of unknown origin of the synovial joints of the spine and adjacent soft tissues. The process almost always begins in the sacroiliac joints and usually progresses to involve the synovial (facet or apophyseal) joints of the lumbar, thoracic and cervical regions and the costovertebral articulations. The pathologic changes in the joints consist of synovitis, chondritis, juxta-articular osteitis and ankylosis. There occur painful spasms and contractures in the paravertebral muscles. As the disease progresses, calcific and later osseous changes develop in the paraspinal ligaments. The vertebral bodies frequently show secondary demineralization. The intervertebral disks are not affected.

Space will not permit a discussion of the relationship between peripheral rheumatoid arthritis and rheumatoid spondylitis. Suffice it to say that most American investigators favor the concept that rheumatoid spondylitis is not a separate pathologic entity, but is simply an expression of rheumatoid arthritis as it involves the spine.[7]

DIAGNOSIS

Rheumatoid spondylitis is one of the most prevalent and most crippling of the chronic diseases affecting the spine. Unfortunately, it has evoked little interest other than among physicians particularly interested in diseases of the musculoskeletal system. The diagnosis is often mislabeled and postponed for several years after onset, when it may be too late to expect good therapeutic results. Early diagnosis should not be difficult, however, if physicians are familiar with the characteristic clinical and roentgenographic features of the disease.

Symptoms.—The usual initial complaint of the patient is that of aching, soreness and stiffness of the lower part of the back. Early in the course of the disease the symptoms are mild and of only a few days' duration. However, symptoms recur at varying intervals. The subjective manifestations are usually worse in the mornings on the patient's arising and after periods of rest during the day and tend to improve with activity. The symptoms are generally aggravated by inclement weather and are frequently worse preceding weather changes. Periods of remission often occur spontaneously in the hot dry months of the year. Temporary relief from discomfort is obtained by the local application of heat and the use of salicylates. The discomfort is often pronounced at night, frequently waking the patient. As the disease progresses, the aching and stiffness tend to become persistent and remissions are less common until the process is "burned out."

Less frequently the onset is acute and is characterized by sudden disabling low back pain, often described as "lumbago." The condition in approximately 10 per cent of the cases is initiated by sciatica.[4a] Occasionally the initial symptoms are thoracic girdle pains or inguinal and thigh pains of either a sharp stabbing or dull aching character. Close questioning will usually reveal previous low back symptoms, however, probably mild in character.

As the disease progresses to involve the synovial membranes of the lumbar apophyseal joints, pain, soreness and stiffness of the type described increase. Acute "catches" or attacks of "lumbago," precipitated by motion and trauma, are not uncommon. The lower part of the back becomes less mobile, and the patient notices that he cannot bend forward as readily or completely as formerly.

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[3] Miller, J. L.: Chronic Rheumatic Diseases of the Spine, Arch. Int. Med. **54**: 161-169 (Aug.) 1934. Pemberton, R., and Robertson, J. W.: Studies on Arthritis in the Army Based on Four Hundred Cases: I. Preamble and Statistical Analysis, Arch. Int. Med. **25**: 231-240 (March) 1920. Pemberton, R., and Tompkins, E. H.: Studies on Arthritis in the Army Based on Four Hundred Cases: II. Observations on the Basal Metabolism, ibid. **25**: 241-242 (March) 1920. Pemberton, R., and Foster, G. L.: Studies on Arthritis in the Army Based on Four Hundred Cases: III. Studies on [illegible] on Dioxide Combining Power, Calcium, Total [illegible] the Fasting Blood, Renal Function, Blood Su[illegible] ibid. **25**: 243-282 (March) 1920. Pemberton [illegible] E.: Studies on Arthritis in the Army Based o[illegible] V. Studies in the Relation of Creatin Metab[illegible] **25**: 335-350 (April) 1920. Pemberton, R.: Studies on Arthritis in the Army Based on Four Hundred Cases: V. Roentgen-Ray Evidences, Clinical Considerations, Treatment, Summary, Conclusions and Clinical Abstracts of Cases Studied, ibid. **25**: 351-404 (April) 1920.

[4] (*a*) Boland, E. W., and Present, A. J.: Rheumatoid Spondylitis: A Study of One Hundred Cases with Special Reference to Diagnostic Criteria, J. A. M. A. **129**: 843-849 (Nov. 24) 1945. (*b*) Buckley, C. W.: Chronic Rheumatic Diseases from the Services in E. N. S. Hospitals, Ann. Rheumat. Dis. **5**: 122-125 (June) 1946. (*c*) Hench, P. A., and Boland, E. W.: The Management of Chronic Arthritis and Other Rheumatic Diseases Among Soldiers of the United States Army, Arch. Int. Med. **24**: 808-825 (May) 1946.

[5] Boland, E. W.: Rheumatoid Spondylitis: Its General Features and Management, California Med. **65**: 285-292 (Dec.) 1946.

[6] (*a*) Herrick and Tyson.[1a] (*b*) Hare.[1b] (*c*) Dunham, C. L., and Kautz, F. G.: Spondylarthritis Ankylopoietica: Review and Report of Twenty Cases, Am. J. M. Sc. **201**: 232-250, 1941.

[7] (*a*) Dunham and Kautz.[6c] (*b*) Polley, H. F.: A Study of 1,035 Cases of Rheumatoid Spondylitis, Thesis, Graduate School, University of Minnesota, March 1945. (*c*) Smyth, C. J.; Freyberg, R. H., and Lampe, I.: Roentgen Therapy for Rheumatoid Arthritis of the Spine (Marie-Strümpell Arthritis: Spondylitis Rhizomelique), J. A. M. A. **117**: 826-831 (Sept. 6) 1941. (*d*) Oppenheimer, A.: Diseases of Apophysial (Intervertebral) Articulations, J. Bone & Joint Surg. **20**: 285-313, 1938.

When the dorsal segment is affected, thoracic girdle pain and chest pain on forced inspiration, coughing or sneezing are often present.

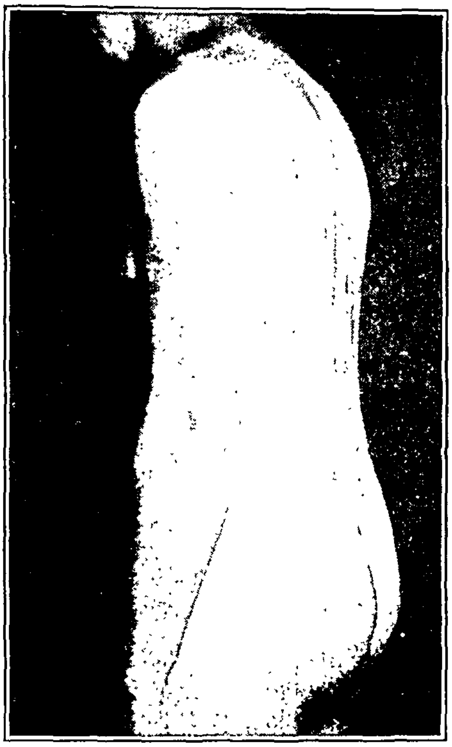

Fig. 1.—Rheumatoid spondylitis, moderately advanced, with straightening of lumbar part of the spine. The muscle atrophy in the lumbar region ("ironed out" appearance) may be noted.

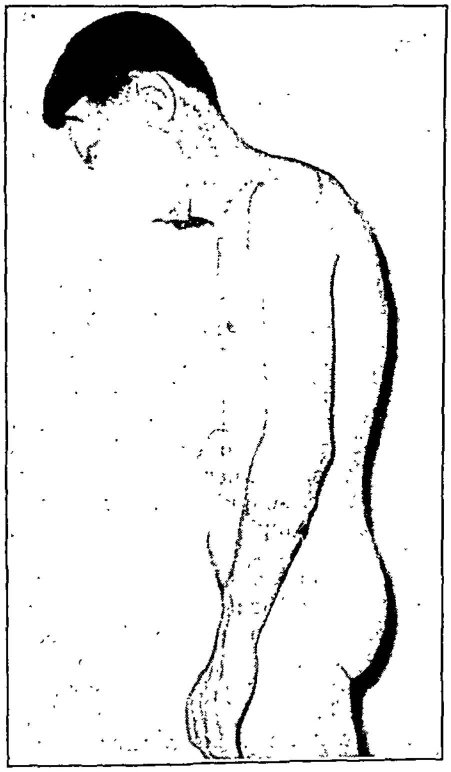

Fig. 2.—Rheumatoid spondylitis involving the entire spine. The flattened anterior part of the chest and thoracic kyphosis may be noted. The neck is protruded forward, and lumbodorsal stoop is apparent.

With involvement of the cervical spine the neck becomes stiff, motion is limited in all directions and the head is often protruded forward. The patient may have to pivot his entire body in order to look in a lateral direction.

Clinical Signs.—When the disease is localized to the sacroiliac joints, the most frequent positive physical observations are: 1. Tenderness and pain over these joints on palpation and first percussion and precipitation of pain on motion or stretching of the sacroiliac joints. 2. Lumbar muscle spasm may be present. 3. Motion of the spine may not be discernibly affected. Positive physical observations may be absent if the disease is mild or if the sacroiliac joints are ankylosed.

With extension of the process to the joints of the lumbar portion of the spine there is a decrease in the normal lumbar lordosis, paravertebral lumbar muscle rigidity, limitation of lumbar motion and atrophy of the lumbar muscles which ultimately result in a flattened or "ironed out" appearance (fig. 1).

When the dorsal region is involved, the patient may exhibit pronounced postural deformity unless preventive or corrective measures have been previously instituted. Chest expansion is diminished. The anterior chest wall is flattened and associated with thoracic kyphosis (thoracolumbar stoop). Tenderness is elicited by percussion over or just lateral to the dorsal spinous processes. Motion of the thoracic part of the spine is limited. Spasm and/or atrophy of the muscles of the dorsal level is present (fig. 2).

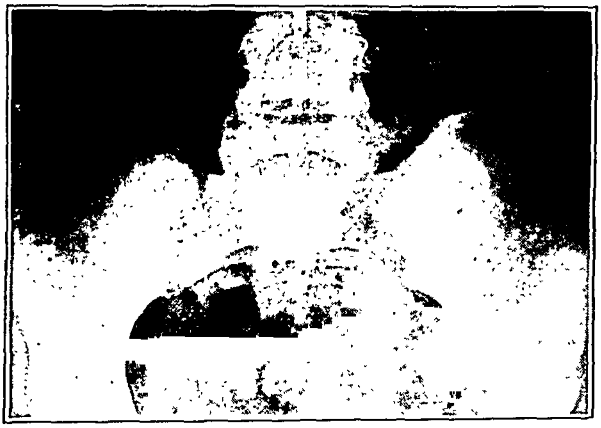

Fig. 3.—Mild rheumatoid spondylitis in a woman aged 48, with symptoms of three years' duration. The sacroiliac joint margins are blurred and indistinct. Juxta-articular increase in bone density in the ilium and sacrum may be noted.

When the neck becomes affected there is pain on forced motion and tenderness on palpation and percussion over the posterior aspect of the neck.

Roentgenographic Features.—The roentgenographic features of rheumatoid spondylitis are characteristic. However, as in peripheral rheumatoid arthritis, definite symptoms and positive physical observations may be present for many months before structural changes are roentgenographically demonstrable. The earliest roentgen changes in rheumatoid spondylitis are seen when the disease has progressed sufficiently to produce alterations in the cartilage and juxta-articular bone of the sacroiliac joints. The changes are usually bilateral, but may be more pronounced on one side than the other. Definite changes may be apparent in one side for many months before they can be demonstrated in the other. The earliest changes are characterized by blurring or haziness of the joint margins. Later the margins appear irregularly mottled and serrated, and the juxta-articular portions of the sacrum and ilium may show increased density, spotty osteoporosis or both (figs. 3 and 4). These changes are particularly pronounced in the caudal third of the joint. With continual progression complete ankylosis results (fig. 5).[8]

The roentgen changes in the apophyseal joints are not as definite or as constant as those in the sacroiliac articulations. The results are often disappointing, even with special technics. The alterations, when present, are usually limited to one or a few scattered joints and qualitatively the changes are similar to those described in the sacroiliac joints. Rarely are apophyseal changes seen without accompanying evidence of sacroileitis.

The roentgenographic changes in the thoracic region may consist of scattered apophyseal involvement, which is technically even more difficult to demonstrate than changes in the lumbar segment. With progression of the disease to involve the dorsal portion of the spine, however, there may be calcific deposits in the paraspinal ligaments. Calcification most often begins in the lower thoracic and upper lumbar levels of the spine. It may vary from a fine penciling of calcium in the anterior spinal ligament to extensive calcification and ossification, producing the well known roentgenographic picture of a "bamboo spine" (figs. 5 and 6).

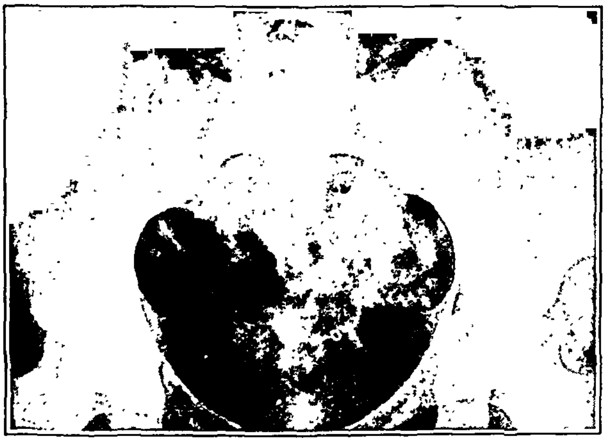

Fig. 4.—Moderate rheumatoid spondylitis in a woman age 20 with symptoms of six months' duration. The sacroiliac joints are irregularly mottled. Juxta-articular sclerosis is pronounced. Narrowing of the left hip joint may be noted.

The roentgen observations in the cervical region are similar to those described in the thoracic region.

Laboratory Observations.—The erythrocyte sedimentation rate is elevated in approximately 80 per cent of the cases of active rheumatoid spondylitis.[4a] It is the most helpful and consistent laboratory aid to diagnosis with the exception of roentgenographic changes in the sacroiliac joints. Patients with mild slowly progressive conditions may have repeatedly normal sedimentation rates, while in severe conditions it is almost invariably elevated. Mild hypochronic anemia is present in about 30 per cent of cases and usually runs parallel with the degree of severity of the disease.[4a]

The cerebrospinal fluid has been studied in patients with rheumatoid spondylitis, and the initial manometric pressure, cell counts, concentrations of sugar and colloidal gold reactions are generally normal.[9] In approxi-

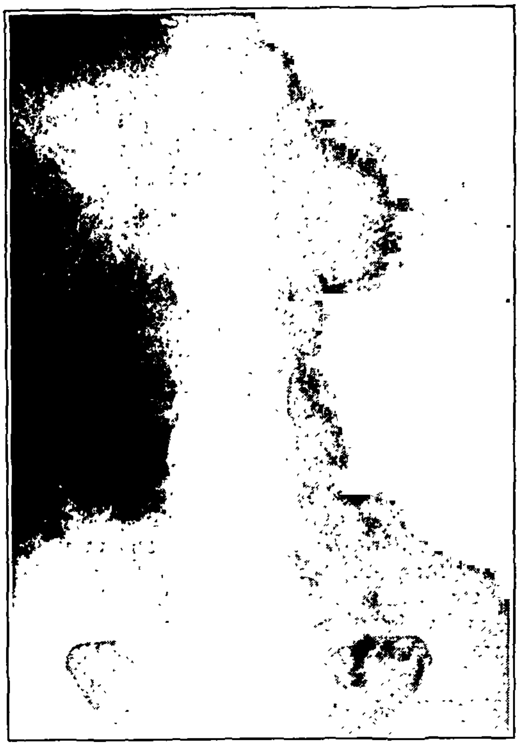

Fig. 5.—Severe rheumatoid spondylitis in a woman aged 48, with symptoms of thirty years' duration. The sacroiliac joints are ankylosed. Extensive ligamentous calcification is present, producing the terminal picture of a "bamboo spine." Secondary demineralization of vertebral bodies, of the sacrum and the ilium, may be noted.

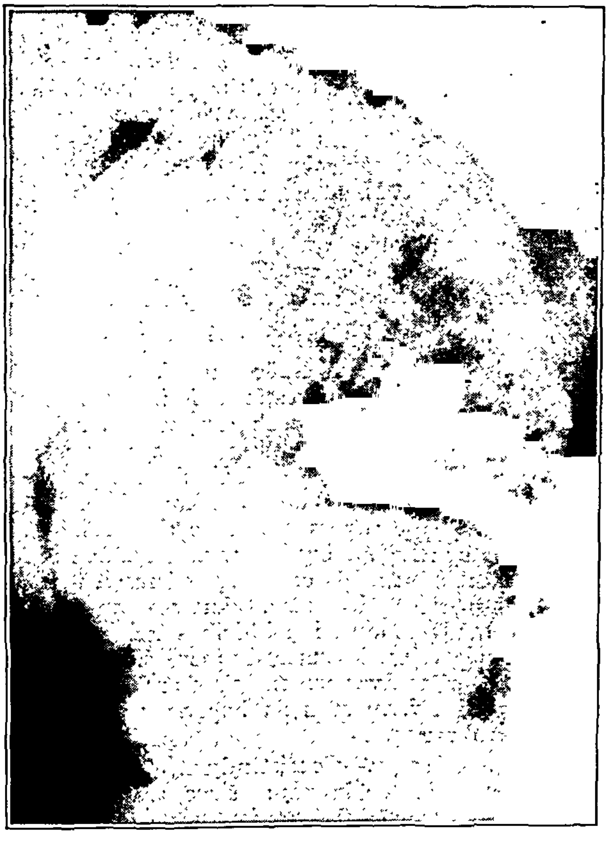

Fig. 6.—Roentgenogram of the same patient as that of figure 5. Severe dorsal kyphosis and calcification of anterior spinal ligaments in the lower thoracic region may be noted.

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8. Boland, E. W., and Shebesta, E. M.: Rheumatoid Spondylitis: Correlation of Clinical and Roentgenographic Features, Radiology **47:** 551-561 (Dec.) 1946.

9. Ludwig, A. O.; Short, C. L., and Bauer, W.: Rheumatoid Arthritis As a Cause of Increased Cerebrospinal Fluid Protein: A Study of One Hundred and One Patients, New England J. Med. **228:** 306-310 (March 11) 1943.

mately 40 per cent of cases of this disease the total protein content of lumbar spinal fluid has been found to be increased from 45 to 105 mg. per hundred cubic centimeters. The protein content bore no consistent relationship to the duration of the disease or to the extent of cephalad progression but was apparently related to the severity of the spondylitis.[10]

CLINICAL COURSE OF RHEUMATOID SPONDYLITIS

Rheumatoid spondylitis usually follows a fairly characteristic clinical pattern. The initial sacroiliac involvement is usually followed by upward progression, which may finally involve the entire spine. One area of the spine may be active and symptomatic, while another is quiescent and asymptomatic. The active process may subside either temporarily or permanently at any level of the spine.

When the patient is first seen, the symptoms and observations are variable and depend on the duration, severity and areas of the spine actively or inactively involved at the time. Mild conditions may continue for many years, producing little or no back disability or general constitutional symptoms, such as fever, malaise, fatigue and weight loss. Patients in whom the process is severe and rapidly progressive may become disabled within a few months; in such cases constitutional symptoms are usually a prominent feature, particularly if peripheral joints are concomitantly involved.

I have been impressed by the relatively milder character of the disease in women as compared to the disease in men. The roentgen changes in the sacroiliac joints are usually less pronounced, and rarely have I found the disease advanced enough to demonstrate calcific and osseous changes in the paravertebral ligaments. Ligamentous calcification was seen in only 1 of the aforementioned 12 cases. Low back complaints in women seem to be expected and taken for granted. The condition in 3 of the patients was diagnosed as "idiopathic" low backache without roentgen examination. In 2 cases low back complaints were ignored because of predominating symptoms in peripheral joints; yet the diagnosis of rheumatoid spondylitis could be made in all of them by physical and roentgen observations. I wonder whether physicians are not overlooking cases of rheumatoid spondylitis in women by not examining them more carefully and completely.

TREATMENT

There is no known specific cure for rheumatoid spondylitis. However, if treatment is instituted early and continued faithfully, much can be accomplished toward relieving or ameliorating the symptoms and preventing and correcting spinal deformity. The patient's confidence and cooperation must be obtained if good therapeutic results are to be expected. This is best done by familiarizing him with the nature of his disease and its potentially crippling end result if treatment is neglected. He should know what may be expected from treatment if faithfully executed. With this knowledge, he will usually be more diligent in the performance of the various exercises and other home measures which form such an important part of the therapeutic regimen.

Roentgen Therapy.—Consistently favorable reports have appeared in the literature since 1930 regarding the results of roentgen therapy for rheumatoid spondylitis.[11] In a series of 52 patients with rheumatoid spondylitis treated with roentgen rays, 72 per cent were reported to have obtained notable subjective improvement and 50 per cent experienced definite objective improvement.[7c] In some instances, all clinical evidences of the disease disappeared, suggesting that at times the disease may possibly become arrested as a result of roentgen therapy. In this study possible psychic effect was ruled out by having a control group of patients go through the same routine as those in the roentgen therapy group; however, the former received no actual irradiation (the rays were blocked by lead screens without the patient's knowledge). No significant beneficial results were obtained in the control group.

This work was recently confirmed and extended.[12] This report is concerned with the treatment of 75 soldiers with rheumatoid spondylitis at an army rheumatism center. The results indicated that roentgen therapy applied to the involved regions of the spine was of definite value in rheumatoid spondylitis: Ninety-two per cent of the patients so treated were improved symptomatically, and 68 per cent were improved objectively. Of those receiving "psychic roentgen therapy," objective improvement occurred in 8 per cent and subjective improvement in 28 per cent. Best results were obtained when roentgen therapy was combined with deep breathing and postural exercises.

The technic of therapy used in both of the aforementioned groups was essentially the same and is now the one most commonly used in this country: 200 kilovolts with 0.5 mm. of copper and 1 mm. of aluminum filtration. The usual field was 10 by 15 cm. for the lumbosacral region and 8 by 20 cm. above the lumbosacral region. The dosage consisted of 200 r (measured in air) per portal every two days for three doses. Three doses per portal (a total of 600 r) constituted a series. Each patient received three series at thirty to forty-five day intervals.

Roentgen therapy should be directed to the areas of the spine symptomatically and clinically involved and not just confined to the areas roentgenographically involved.[12] It has been advocated that additional roentgen rays be given to symptomatic regions if recrudescences occur.[13]

It cannot yet be determined whether roentgen therapy actually alters the course or activity of the disease process or whether it simply produces an analgesic effect. Controlled studies over a period of years will determine this.

Prevention and Correction of Postural Deformities.—Much can be accomplished with relatively simple exercises in preventing postural deformities if these are carried out regularly and diligently for a period of years. It should be stressed that the exercises given by the physical therapist in the hospital or in the physician's office must be carried out at least twice daily at home. These should include trunk stretching, hamstring and calf stretching, deep breathing and exericses for the correction of special postural defects. The exercises often may be carried out more readily and less painfully if acetylsalicylic acid and heat (hot tub baths) are given thirty minutes beforehand. The patient must be taught to become "posture conscious" and assume a proper stance at all times. The spondylitic patient should use a firm bed (boards under a felt or latex mattress) and no pillow. A soft pillow under the lumbar region will help to maintain the normal lumbar curve and a firm blanket roll under the neck will increase spinal hyperextension. These measures will help prevent postural deviations and may even correct minor and early deformities.

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[10] Boland, E. W.; Headley, N. E., and Hench, P. S.: Increased Protein Content of the Cerebrospinal Fluid in Rheumatoid Spondylitis, J. Clin. Investigation **25:** 918 (Nov.) 1946.

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[12] *Smith, R. T.; Boland, E. W.; Shebesta, E. M., and Hench, P. S.:* The Effect of Roentgen Therapy in Rheumatoid Spondylitis: Results Based on a Controlled Study in Soldiers, to be published.

[13] Freyberg, R. H.: Roentgen Therapy for Rheumatic Diseases, M. Clin. North America **30:** 603-615 (May) 1946.

Spinal braces should be reserved for patients with deformities that are more advanced and whose postures cannot be adequately corrected or maintained by exercises alone. The same is true for hyperextension frames and beds and plaster half-shells. In some cases of severe deformities plaster half-shells and braces may aid in controlling muscle spasm and pain.

General Measures.—Measures to maintain and improve the general health and strength are just as important in the treatment of spondylitis as in peripheral rheumatoid arthritis. Complete bed rest is rarely advisable except for patients with severe rapidly progressive disease. The usual patient with mild or moderately severe disease should get eight to ten hours of bed rest at night and an additional one or two hours in bed at noon. The back should be protected from undue physical activity at all times. Weight should be regulated by administration of a high caloric diet to the malnourished and a low caloric diet to the obese patient. Ample vitamin supplements should be given and iron salts if hypochromic anemia is present. Acetylsalicylic acid (40 to 60 grains [2.6 to 3.9 Gm.] per day) should be given as often and in the amount necessary to control pain. Home physical therapy in the form of baking, infra-red heat, massage and thermal baths is often of help in giving symptomatic relief.

Other Measures.—Foreign protein reactions by the intravenous injection of typhoid vaccine may possibly be of value in altering the course of the disease. Whether actual remissions may be produced or not is questionable. Gold salts have been used in a small number of reported cases and are said to be of no value.[14]

COMMENT

The diagnosis of rheumatoid spondylitis is not difficult when the disease is advanced. Cases of severe disease with "poker back" deformity are generally readily recognized. The diagnosis of early disease is frequently difficult, however, and may be missed, unless the disease is considered in every patient, especially young men with chronic back complaints.

Chronic recurrent or persistent low back aching and stiffness, with or without catching pains, in young adults is strongly suggestive of this disease. Radicular pains, particularly sciatic and thoracic, are common symptoms and may overshadow previous or present mild low back discomfort. Sciatic pain may alternate from side to side and is usually not severe. These symptoms when accompanied with muscle spasm, flattening of the normal lumbar lordosis, limitation of lumbar motion, sacroiliac and lumbar tenderness to percussion and palpation, an elevated sedimentation rate, perhaps mild constitutional symptoms and roentgenographic alterations in the sacroiliac joints definitely establish the diagnosis. It is important to remember, however, that one or more of the aforementioned symptoms and observations may be absent, particularly in cases of mild disease.

Sacroiliac joint alteration demonstrated by roentgen examination is the most useful and reliable laboratory aid in the diagnosis of rheumatoid spondylitis; however, there may be an interval of several months to two or three years after the onset of symptoms before definite roentgenographic changes can be demonstrated.[15] This interval is usually more than compensated for by the patient's tardiness in consulting a physician; usually when the patient is first seen, roentgen changes will be present.[1d] The opinion has been expressed that, although the disease may be suspected clinically, an unequivocal diagnosis should not be made when there are no demonstrable roentgen changes.[4a]

The sedimentation rate is elevated in approximately 80 per cent of the cases of active rheumatoid spondylitis. An elevated sedimentation rate is of particular significance when the symptoms and observations are suggestive but the roentgenograms are still normal. There is no elevation of the sedimentation rate in the disorders from which rheumatoid spondylitis must be differentiated: osteoarthritis, muscular rheumatism of the back and ruptured intervertebral disk.

Persistent symptoms referable to the back occurring in a person with peripheral rheumatoid arthritis usually indicate the association of rheumatoid arthritis of the spine.

SUMMARY

The criteria for the diagnosis of rheumatoid spondylitis are presented. An observation relative to the difference in sex incidence among a small group of private patients with this disease is reported. This observation is at variance with that generally reported. There is no known specific cure for rheumatoid spondylitis. However, if treatment is started early in the course of the disease and continued faithfully, much can be done toward preventing and even correcting spinal deformity. The therapeutic regimen should be well rounded and should include: maintenance of a good general state of health, regulation of rest, diligent execution of deep breathing and postural exercises, appropriate physical therapeutic procedures and roentgen therapy to the segments of the spine that are actively involved clinically.

ABSTRACT OF DISCUSSION

Dr. Edward F. Rosenberg, Chicago: Dr. Query's report of 32 cases encountered within a relatively short time, in his own practice, is indicative of the numerical significance of this disease in every American community. The incidence increases regularly wherever interest in rheumatoid spondylitis appears. It is prevalent, but often goes unrecognized. The disease is often undiagnosed for years after symptoms appear. The patients frequently receive a diagnosis of lumbago, fibrositis, muscular rheumatism, chronic low back strain, renal disease or sciatica. Meanwhile, time is lost, and in some instances irreparable deformities are allowed to appear. I regret that in many instances spondylitis goes unrecognized until the spine assumes the bamboo appearance associated with most advanced and extensive stages. Dr. Query's observation of 12 female patients among 32 patients with rheumatoid spondylitis is remarkable. The literature reflects wide variations in sex incidence in different series. All agree that rheumatoid spondylitis is more common among men; in fact, some doubt whether rheumatoid spondylitis ever occurs in female subjects. On the other hand, the incidence in female patients was 47 per cent in one series. It is not possible to explain such wide variations. Perhaps criteria for diagnosis are too loose in some series and the incidence in female patients consequently higher than is proper. In others criteria are, doubtless, too rigid. The disease certainly occurs in female patients and runs a course in them similar to that in male patients. The incidence of female patients in my material is 10 per cent. Abnormal elevations of protein in the spinal fluid have been observed in nearly 40 per cent of the cases in which this phenomenon has been studied—an important point to remember. The early symptoms of rheumatoid spondylitis in some cases consist of recurring episodes of sciatica, like those in patients with protruded disks. High levels of cerebrospinal fluid protein cannot therefore be used to prove the diagnosis of protruded disk. That diagnosis must be made on more secure grounds. The wide popularity of roentgen therapy for spondylitis may be misleading. One gathers the impression from some writers that this is the only measure of therapy needed. Dr. Query rightfully stresses that this is not the case. Roentgen therapy may produce some analgesia and even some objective improvement, but the main problem of the patient's care remains. He is still suffering from rheumatoid spondylitis. His disease will probably progress and will require every aid—hygienic measures, orthopedic care, physical therapy and other common sense measures at one's command. Doctors have a grave responsibility to learn to recognize this condition earlier and to see that the patients are given the benefit of intensive and early treatment.

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[14] Cecil, R. L.; Krammerer, W. H., and De Prume, F. J.: Gold Salts in the Treatment of Rheumatoid Arthritis: A Study of Two Hundred and Forty-Five Cases, Ann. Int. Med. **16**: 811-827 (May) 1942.

[15] Boland and Present.[4a] Boland and Shebesta.[8]

Dr. Richard T. Smith, Philadelphia: Rheumatoid spondylitis is probably misdiagnosed in 100 per cent of cases in which the disease has persisted from months to years. Any patient with recurrent low back pain deserves a careful study for the possibility of spondylitis. The majority of cases do occur between the ages that were pointed out, but rheumatoid spondylitis can occur at probably any age, and this should not be forgotten. The response to therapy is beneficial—not cure so much as response. During the war years roentgen therapy was given, two or three doses, thirty to forty-five days apart, but the tendency now is to spread it out, with administration when the patient has symptoms requiring roentgen therapy. When the roentgen therapy has been given the first time, all of these other measures must be used. The patient must realize the possibility of severe crippling that will occur in the future if he or she does not follow the regimen. Posture is extremely important, because a person with a stiff spine that is erect and in good position is not much of a cripple, whereas a patient who has a dorsal stoop, a caved in chest, restricted chest expansion, a shuffling gait or limitations of motion in other joints, is certainly a cripple. The entire program must be entered into as the doctor directs and as outlined by Dr. Query. I am certain that the statistics on the incidence of the disease as a whole and in the sexes is incorrect. In my experience in Philadelphia, there have been closer to 5 male patients to 1 female patient than the 9 to 1 previously reported; so that early diagnosis, careful treatment and proper appreciation of any of these low back pains will save many patients from many years of pain, crippling and agony.

Dr. Richard Z. Query Jr., Charlotte, N. C.: Most American investigators feel that treatment with gold preparations if of no benefit in rheumatoid spondylitis; however, Forrestier, who popularized gold compounds for treatment of rheumatoid arthritis, expressed the opinion that it was of benefit in the treatment of this disease.

PSYCHIATRIC PROBLEMS IN A THYROID CLINIC

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and
JOHN C. WHITEHORN, M.D.
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In the clinical management of hyperthyroid conditions the psychiatrist is sometimes consulted for help in handling psychotic reactions and sometimes for advice in the management of lesser emotional disturbances. Such emergency consultations set a severe trial of the psychiatrist's clinical judgment and of his ability to cooperate helpfully with surgeons and internists. The psychiatrist often wishes that he had been consulted earlier, before the psychiatric emergency arose in such a ticklish situation, but it would not be possible to satisfy this desire, even with very cooperative clinical team work, because the emotional emergency has not infrequently appeared at the very onset of the thyroid disease. The literature on hyperthyroidism abounds with notations about emotional trauma as the apparent precipitating cause of hyperthyroidism.[1] The first description of the syndrome by Parry[2] in 1803 contained comment on the sudden fright which preceded the illness. Studies between 1920 and 1935, particularly those of Maranon,[3] Mittelman[4] and Conrad,[5] documented the frequency of such occurrence. In reports of anamnestic studies of causative factors, such emotional events are the only items which are found with considerable regularity. Yet, somehow, the possibility that emotional troubles may play an important role in the cause and course of the illness seems not to have received an appropriate amount of attention in the treatment of hyperthyroidism.

In the course of a moderate number of psychiatric experiences and observations on hyperthyroid patients, one of us (J. C. W.) had formed several general impressions, some of which seemed inconsistent: First, an acute emotional disturbance, seriously endangering the thyrotoxic patient, may be precipitated by an eager psychotherapist, enthusiastically disposed to uncover psychodynamically important material. Second, the resort to a very cautious, passive psychotherapeutic

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Dr. E. V. Newman and Dr. Samuel Asper, physicians in charge of the thyroid clinic, and Miss Virginia Lane, social worker, cooperated in this study.

Read before the Section on Nervous and Mental Diseases at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

[1] Crawford, R.: Graves' Disease: An Emotional Disorder, King's College Hosp. Rep. **3:** 45, 1895-1896. Harland, W. H.: Notes on Two Cases of Exophthalmic Goiter Appearing Suddenly on Men Who Have Been in Action, Brit. Med. J. **2:** 584, 1900. Levi, L., and de Rothschild, H.: Endocrinologie: Nouvelles études sur la physio-pathologie du corps thyroide et des autres glands endocrines (2 s.), Paris, O. Doin et fils, 1911. Newburgh, L. H., and Camp, C. D.: The Influence of Anxiety States on the Thyroid Gland, Ann. Clin. Med. **4:** 1006, 1926. Bram, I.: Psychic Trauma in Pathogenesis of Exophthalmic Goiter, Endocrinology **11:** 106, 1927. Kiene, H. E., and Dixon, H. H.: A Study of Psychogenic Factors in Thyrotoxicosis, J. Nerv. & Ment. Dis. **74:** 483, 1931. Brown, W. L. The Endocrines and Some Associated Psychoneuroses, Brit. Med. J. **1:** 223, 1932. Goodall, J. S., and Rogers, L.: The Effects of the Emotions in the Production of Thyrotoxicosis, Med. Rec. **138:** 411, 1933. Benedek, T.: Mental Processes in Thyrotoxic States, Psychoanaly. Quart. **3:** 153, 1934.

[2] Parry, C. H.: Collected Works, London, Underwood, 1825, vol. 1, p. 478.

[3] Maranon, M. G.: Le facteur emotional dans la pathogenie des états hyperthyroidiens, Ann. d. méd. **9:** 81, 1921.

[4] Mittelman, B.: Psychogenic Factors and Psychotherapy in Hyperthyreosis and Rapid Heart Imbalance, J. Nerv. & Ment. Dis. **77:** 465, 1933.

[5] Conrad, A.: The Psychiatric Study of Hyperthyroid Patients, J. Nerv. & Ment. Dis. **79:** 505, 1934.

approach may likewise precipitate dangerous emotional crises. But, third, a considerably safer and smoother emotional course seemed to be gained by a rather active and aggressive "superficial" psychotherapy. There are many psychiatric patients for whom it is a considerable advantage for the psychiatrist to be alert and prompt in grasping and evaluating the emotional implications of the current life situation and to express these evaluations not in abstract terms but in decisions on practical details. This sort of prompt decisiveness on practical details had appeared particularly to be valuable in dealing with hyperthyroid patients. This set of clinical impressions is obviously not one which is very pleasing to a psychiatrist who is deeply interested in the dynamics of psychotherapy, but it did seem to be about the way the matter shaped up, empirically. These apparently contradictory impressions might perhaps be reconciled by the supposition that these patients were in rather desperate need of some one who would show interest and consideration but would be firm and decisive in his own mind—some one who was able to take charge of a situation, but not in an offensively domineering or coercive fashion—in short, some one to depend on.

During the postwar period at the Johns Hopkins Hospital we have been developing, in close relationship with the department of medicine, a plan of regular and systematic attention to the personality functions in all the patients on a medical service, not just those acute and exaggerated personality problems for which a consultation is urgent. We have been particularly fortunate in the collaboration provided in the thyroid clinic. To have a regular part in the study and treatment of all the thyroid patients in a clinic provides a much more satisfactory basis of knowledge than just to be called for consultation in special cases.

The purpose of the present communication is to report on the psychiatric aspects of the hyperthyroid patients as seen by one of us (T. L.) during this experience.

MATERIAL AND OBSERVATIONS

A preliminary study of 15 thyrotoxic patients, which has been reported elsewhere,[6] lent convincing support to the hypothesis that emotional factors were of causative importance in hyperthyroidism, for almost all patients were found to have suffered a serious emotional crisis prior to the onset of the illness, which was critical because it struck at the core of the weakness in the personality configuration. It is not possible to present the complete observations here, but random selection of 5 cases from the current series will serve to illustrate the consistency with which emotional traumata antecede the illness. 1. A 40 year old Negro woman became ill shortly after the nephew she had raised as a son married and disappeared, at the same time that the eldest sister who had raised her was dying. 2. A patrolman who had been scrupulously conscientious was by-passed in promotions because of political influences and became hostile and somewhat paranoid toward the men on the force; he was impelled to quit, unconsciously afraid of his hostile impulses, but was unable to relinquish the security provided by his position. 3. A 45 year old woman decided to leave her alcoholic second husband who neglected her, but felt forced to return to him when she felt unwanted by her mother and her children. 4. A 40 year old childless Negro woman left the job that had been a major source of satisfaction, to keep tabs on her husband, and then felt compelled to leave him when she obtained proof of his infidelity, but was unable to leave and live alone. 5. A young woman left the aunt who had raised her when her husband returned from the Army, but could not endure the domination of her mother-in-law and considered separating from her husband to regain her aunt's oversolicitous protection when she became pregnant. These were the last 5 patients admitted to the clinic at the time of writing, rather than selected examples.

These 5 cases also serve to illustrate a characteristic meaning in the precipitating traumatic events. The trauma which preceded the onset of the illness typically involved the loss or threat of loss of a cardinal interpersonal relationship. The particular sensitivity of thyrotoxic patients to such loss seemed to be clarified by the developmental history. As a group, with due respect for the error and approximation of generalizations, they had in childhood felt less wanted than a sibling, but eventually had become the successful rival for parental affection by becoming the good child who gains affection and attention by constant giving and doing for others and had persisted in this devoted, yet dependent, pattern after the rival siblings had become emancipated. Unless they can give of themselves, they feel unwanted and rejected. They are inordinately jealous of affection and strive to gain all-embracing affection from another person by binding themselves to a parental figure, a child or a spouse by smothering oversolicitude. They expect in return the same unswerving fidelity they tendered their parents. To have their offerings rebuffed, or to become unneeded, appears to reawaken the childhood insecurities, and they become resentful and depressed.

The consistency of such observations led to the reorganization of the Thyroid Clinic of The Johns Hopkins Hospital on the basis of the hypothesis that the thyrotoxic patient presents a serious psychiatric as well as an endocrine problem. The reorganization took place at the time of the advent of n-propyl thiouracil, when an experimental study was being established to learn whether or not prolonged medical therapy could obviate surgical treatment in a substantial number of patients.[7] The shift of the major therapeutic responsibility from the surgeon to the internist, and from the ward to the outpatient department, created new problems that required psychiatric help. The patient was apt to be extremely unstable until the metabolic rate fell, and the degree of instability had to be evaluated during clinic visits both to minimize suicidal risks and to recognize when the patient was incapable of adhering to the medical regimen without hospitalization. The experimental study was broadened to attempt to evaluate the proposition that reestablishment of emotional equilibrium might be essential to the maintenance of a normal metabolic rate after discontinuance of treatment with n-propyl thiouracil. It will take several years before any conclusions can be reached, but in the meantime it has become apparent that the psychiatrist and the social worker, or at least the utilization of psychiatric insights and technics, may play an important role in the treatment program.

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[6] Lidz, T.: Emotional Factors in the Etiology of Hyperthyroidism, to be published.

[7] Asper, S., and Sisson, J. H.: Use of N-Propyl Thiouracil in the Treatment of Hyperthyroidsm, to be published.

The treatment of the hyperthyroid patient has become a cooperative and closely integrated concern of the internist, the psychiatrist and the social worker. New patients are interviewed by both the psychiatrist and the social worker and the therapeutic strategy formulated by a conference of all three participants. The fruitfulness of the psychiatric participation depends on general psychiatric insights and technics for managing anxious and disturbed persons, but more specifically on the special understanding of thyrotoxic patients derived from the preliminary survey.

Although the utilization of *a priori* concepts occasionally leads to error, the constellation has only rarely fallen wide of the mark and has brought recognition of landmarks that serve to orientate the therapist rapidly and permit short cuts in treatment. For example, the few adolescent patients seen have suffered serious jealousy revolving around the separation of their parents and their rejection by one or both parents. In cases of hyperthyroidism starting during pregnancy, the patient has been found to be struggling with her need but inability to leave her husband because he has been neglectful in favor of his mother or a mistress. When the illness arises after marriage, problems are apt to revolve about difficulties in leaving the parental home and jealousy of the husband's attachment to his own family. Older patients are caught up in the loss of a child whom they have tried to attach to themselves permanently by means of smothering oversolicitude. These few examples may serve to give an impression of how the grasp of a dynamic configuration can be utilized to recognize crucial problems and to focus therapy from the early interviews. It is fairly characteristic of hyperthyroid patients to be outgoing persons who relate to others easily and who have made a workable adjustment to living despite serious flaws in their maturation. The psychotherapeutic problem consists in helping the patient to accept a basic attitude of emotional dependence and adapt it to the actual life situation. Only a minority require psychotherapy directed at a thoroughgoing modification of the personality structure.

PRACTICAL SOLUTION OF PROBLEMS

In a clinic oriented toward recognition of the importance of the immediate life situation and the personality structure, the patient realizes from the first encounter that resolution of personal problems is as much a concern of the personnel as diagnosis of symptoms and medical prescription. Either the internist or the social worker, rather than the psychiatrist, may carry the brunt of helping the patient regain emotional equilibrium. An internist who is aware of the possible precipitation of thyrotoxic illness by the loss of a key person in the patient's life may, while eliciting the initial history, pay particular heed to the passing reference to the recent death of the patient's mother; he may hold the patient's discussion to this point even though it evokes uncontrollable sobbing. The depressive concerns underneath the habitual smiles are uncovered, and the physician establishes a firm relationship by indicating his understanding of the importance of the recent death to the patient. With the advice of the psychiatrist and the assistance of the social worker, he helps the patient into new patterns of living in which she may find freedom from the hopeless longing for a maternal figure to offer security. In some cases the social worker may carry the major responsibility for personal support, as in one fairly desperate situation in which a hypomanic boy with serious psychopathic trends, who had been brutally rejected by both parents, was found a stable foster home in which he could live after his thyroidectomy.

The psychiatrist is confronted by many problems aside from the participation in the routine treatment of patients in the experimental study. Emergency situations must be met and critical decisions made. Psychotic manifestations of moderate severity, sufficient to interfere with treatment, have been present in almost 20 per cent of the patients. Although in many the psychotic difficulties disappear or recede as the metabolic rate falls, the indication of a serious personality disorder continues in others. Attention to some fairly consistent patterns helps prevent unmanageable crises. Patients verging on thyroid storm are hospitalized, of course, and psychiatric care provided. Those occasional patients with diabetes as well as hyperthyroidism have also been hospitalized, for the few seen thus far have all been psychotic. It has been found warranted to assume that persons with recurrent hyperthyroidism after thyroidectomy are struggling with serious and unresolved personality difficulties. Attention to the reasons why thyrotoxic patients oppose hospitalization and often insist on leaving too soon has helped forestall emotional crises. It has been found that it is not simply a matter of extreme restlessness associated with hyperthyroidism, but rather that many of these patients cannot relax while away from home because they seem to believe that disaster will overtake their families unless they are present to ward off danger by the magic of obsessive worrying. A knowledge of this pattern, and the liberal relaxation of visiting rules to provide fairly continuous contact with the family, have often brought a striking improvement in the patient's attitude toward hospitalization.

Attempts to utilize the psychiatrist to aid in the differential diagnosis between mild hyperthyroidism and anxiety states has proved rather pointless. The uncovering of serious neurotic traits does not weigh against, but in favor of, the presence of hyperthyroidism. The utilization of n-propyl thiouracil has diminished the need for clearcut differentiation, and, as the impression is currently held that perhaps no differentiation should be made, both medication and psychotherapy are utilized as with clearcut cases.

Whenever possible the principal psychiatric emphasis is placed on the practical solution of problems arising out of recent loss of security, dealing with them as concretely and directly as the personality structure of the patient permits. It is not possible in this brief presentation to cite examples of all the problems which arise. Perhaps foremost among the benefits of the incorporation of psychiatrist and social worker into the routine care of thyrotoxic patients has been the improved morale of the clinic. The patients respond to the highly personalized and individualized therapy by readily seeking help in managing their personal problems, as well as by the regularity of their attendance and unusually fine adherence to the regimen through the lengthy period of therapy and study.

SUMMARY

An attempt is made to describe briefly the reorganization of a thyroid clinic to cope with the emotional difficulties which are encountered in most thyrotoxic patients and which seem to play an important role in the precipitation and course of the illness. Recognition of the importance of emotional problems in the causation of hyperthyroidism is an old story. This communication reports an attempt to take this knowledge from the theoretical realm and to make it serve in the practical management of patients, utilizing it in the attempt to restore the patients to useful satisfactory living rather than concentrating simply on the restoration of the metabolic rate to within normal limits.

ABSTRACT OF DISCUSSION

Dr. F. P. Moersch, Rochester, Minn.: In spite of many references in the early literature to the emotional factors associated with hyperthyroidism, little serious attention has been given to this phase of the problem until relatively recently. One of the important points of the paper is the over-all situation in which the psychiatrist moves in with the internist in a thyroid clinic working hand in hand to the benefit of the patient and toward a higher grade of medical practice. This type of cooperation is being extended to all fields of medicine. The pattern presented by Dr. Whitehorn and Dr. Lidz is one that would be well to heed more closely. My colleagues remain in a quandary as to the causes of hyperthyroid states. They recognize that a person with hyperthyroidism "goes to pieces" quickly when confronted with emotional difficulties. After World War I and the influenza epidemic, no great increase in the number of hyperthyroid patients was noted. It is my impression that there was a steady increase in hyperthyroid cases up to about 1927. With the depression in 1930, there was observed a sharp drop in the number of hyperthyroid patients, and this decline has been sustained up to the present. I wonder whether Dr. Lidz and Dr. Whitehorn have any explanation for this fact. The psychiatric approach which the authors use appears to be a common sense approach, based on a knowledge of dynamic principles used by therapists who have the security of their knowledge and conviction. Undoubtedly, many of the hyperthyroid patients are in desperate need of help, and to a neurologist it would seem that the ministrations of a careful therapist who stands for security would be of great value in these crises. While the authors do not claim to set forth a personality profile or to state authoritatively that the conditions which they observed were the universal emotional causative factors of hyperthyroidism, their work lends credence to the fact that the type of trauma which preceded the type of illness typically involved the loss of some important interpersonal relationship. The authors confirm that it is pointless to attempt to define for the internists where hyperthyroidism stops and anxiety symptoms begin. I, too, believe that the two conditions are usually combined. The fact that the hyperthyroid clinic was so successful is a tribute to the willingness of clinicians to see the value of psychiatric aid when it is presented in a practical and an understandable manner. That the internist and the social worker, rather than the psychiatrist, should carry the brunt of helping the patient regain emotional equilibrium will be welcome news to clinicians in general. It is apparent that there will not, for a long time, be a sufficient number of psychiatrists to go around. The fact that almost 20 per cent of the patients encountered have had psychotic symptoms is testimony to the urgency of the problem and the importance of emotional factors in the disease. The hints contained in the paper regarding the liberal relaxation of visiting rules in order to provide continuous contact with the family are of great practical value in the management of thyrotoxic patients.

Dr. Therese Benedek, Chicago: I agree with the authors that the acute or threatening thyrotoxic state is usually not accessible to any active—uncovering or systematic—but long psychotherapeutic procedure. Therefore, it seems to me that it is the method of choice to treat the patient in the frame of his immediate therapeutic needs. The integration of the psychiatric aspect of this therapy, however, does not deserve to be called "superficial." The effectiveness of the approach is the result of the understanding of the presenting conflict situation and its "relationship to the core of the weakness" in the total personality. Acute thyrotoxicosis is the end result of a long intrapsychic fight, during which the patient often was an active-appearing, outgoing, doing, giving, even self-sacrificing and therefore self-satisfied person. Now, when under the onrushing danger of anxious and aggressive tension he feels that he is losing his battle, the patient becomes confused and helpless and often even desperate. Handling the case in a way which takes in account the patient's needs and sensitivities, and succeeds in establishing the patient's sense of mastery in regard to the presenting conflict situation, represents more than a little feat even for the experienced psychiatrist. Even after the metabolic rate is slowed down these patients rarely become accessible to deep psychoanalytic treatment. For the thyrotoxic patients, like children once burned by fire, remain afraid of a possible eruption of their underlying conflicts. Thus in most of the cases one will have to be satisfied if the patient's life situation will permit him to live without accumulating too much hostile and aggressive tension again. Achieving such adjustment will remain—except in the few individually treatable cases —in the hands of such team work as Dr. Whitehorn's clinic represents. The program of this meeting indicates that such team work does not need to be restricted to the thyroid clinic. No doubt the thyrotoxic state is the most apt to demonstrate the interaction between emotional and metabolic processes. The growing understanding of disease as the disturbance of the functional balance of the person as a whole—and the growing knowledge of how this balance can be best sustained and served within the family and by the community—seems to stimulate similar integration of efforts in other branches of metabolic and internal medicine.

Dr. Theodore Lidz, Baltimore: Concerning Dr. Moersch's question, I cannot say what may account for the change in incidence of hyperthyroidism. I have not heard of any clearcut decline such as he mentioned. However, it was noted that relatively little thyrotoxicosis was seen in the armed forces during the last war, whereas a fair amount was seen during World War I. Even then, Maranon pointed out, it was not as common among men in combat as among persons living at home. He expressed the belief that this was as might be anticipated because acute trauma is not as important as problems involving persons intimately related to the patient. I do not know of any definite figures concerning the incidence of hyperthyroidism among the civilian population during the last war, but, even if there were, so many factors are involved that it would be extremely difficult to analyze them. Dr. Moersch indicated that we believe an internist can carry the brunt of therapy. We did not wish to intimate this. We would like to believe that the internist could carry the brunt of therapy, and we hope that some day he will be able to do so. At present he leaves the more complicated situations to the psychiatrist, though he manages to carry a fair number of patients himself. I was happy that Dr. Benedek made two comments in particular: that this type of treatment, though brief, is not superficial and that it does not have to be confined to a thyroid clinic. Actually, we were trying to illustrate how therapy can be brief and effective in conditions in which we believe we have a fairly good working hypothesis of the dynamics of the personality structure. Other persons might feel that they could handle patients with peptic ulcer or hypertension more readily. We decided to use the thyroid clinic to endeavor to work out and demonstrate the benefits to be derived from the integrated activity of internist and psychiatrist because we thought that we could size up the problems rapidly, start therapy immediately and be able to demonstrate some tangible evidence of the

POLYPOID LESIONS OF THE TERMINAL PORTION OF THE COLON

With Special Relationship to Fulguration

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Knowledge of the pathologic manifestations and of the diagnosis of polypoid disease of the colon has progressed, but results of treatment of the condition still are discouraging. Herein fulguration (which we define as a nonsurgical procedure) is described and reasons for its use are given. Also, how the proctologist can aid in combating this grave disease is outlined.

Polyps may occur singly or in numbers, and they may be sessile or pedunculated. The entire colon may be involved by polypoid disease; there are grossly two types of this condition. In one type, the polyps are discrete and gross evidence of pathologic change in the intervening tissues is absent. In the other type, there is a diffuse hyperplastic involvement, which may be segmental or total, and many polyps of all types, sizes and shapes are found. Often, no part of the wall of the colon is free from disease. Such complete involvement is important and must be evaluated in relation to treatment.

MATERIAL

In this paper, we are dealing with material in which the number of polyps per case generally was one or two and never was more than ten unless we make clear that we are writing of multiple polypoid disease. We examined the records of 1,640 patients, proctoscopic examination of whom had revealed polypoid disease of the terminal portion of the colon (table 1). These patients first registered at the Mayo Clinic in the years 1935 to 1937, inclusive; however, discovery of a polypoid lesion in the terminal portion of the colon may not have been made until a subsequent visit. Consequently, an accurate estimate of the incidence of polypoid disease cannot be made from this study. Although the records of 1,640 patients were studied, detailed consideration was given to only 1,402. In 238, notation of complicating factors was found; these cases will be discussed later. Of the 1,402 patients whose records were used for special study, 1,287 were subjected to fulguration. These 1,402 cases were arranged in three groups. A patient was put into one or another group on the basis of the opinion concerning his suitability for fulguration, as recorded by the examining proctologist before treatment, not on the basis of his suitability for fulguration as demonstrated when the results of treatment finally were assessed.

CATEGORIES

Group 1.—This group included 1,345 patients for whom fulguration was considered to be the best treatment. However, for reasons which will be explained later, 105 patients received either surgical treatment or no treatment (table 2). Thus, 1,240 patients were treated by fulguration. In 23 of these 1,240 instances, lesions were large and radium also was applied in small topical doses in order to prevent hemorrhage.

When more than one polyp was discovered, the size of only the largest was recorded. The diameter of the lesions in cases of group 1 ranged from 1 mm. to 5 cm. inclusive. In 74 per cent of the 1,240 cases, the diameter of the polyps was less than 1 cm.; in 23 per cent, it was 1 cm. or more but less than 3 cm., and in 3 per cent it was from 3 to 5 cm. inclusive. In 14 cases, the diameter of the polyps was greater than 4 cm. In 9 of these 14 cases the polyps were pedunculated, and in 5 they were sessile. The diameter of one pedunculated polyp was 5 cm. In 752 cases (60 per cent of the 1,240), one or more of the polyps were fulgurated at the time of the initial proctoscopic examination. This was the rule when the diameter of the polyps was 5 to 6 mm. or less. In the remaining 40 per cent of the 1,240 cases fulguration was performed later. In this group of 1,240 cases were several in each of which a pedunculated polyp was situated orad to the level usually seen in routine proctoscopic examination. The presence of some of these polyps was suspected because blood or bloody mucus appeared in the sigmoid in the course of proctoscopy, and they were discovered when a longer instrument was used. In each of several other cases, when routine proctoscopic examination failed to reveal the polyp, it was discovered by the roentgenologist and, when the patient returned for more thorough proctoscopic examination, the proctologist was able to discover a lesion which often was situated as much as 45 cm. proximal to the anus.

In a few instances in which the lesion was situated near the anorectal junction, caudosacral anesthesia was used in order to prevent pain during fulguration. Otherwise, anesthesia was not employed.

Seventy-seven per cent of the lesions were situated in the proximal half of the rectum and in that portion of the sigmoid which can be visualized through the sigmoidoscope. Small lesions (usually less than 1 cm. in diameter) were fulgurated regardless of their situa-

TABLE 1.—*Material*

Records examined	1,640
Detailed study	1,402
Fulguration performed	1,287
Group 1; fulguration best	1,345
Group 2; fulguration at least justifiable	49
Group 3; fulguration palliative only	8
Complicated cases	238

TABLE 2.—*Group 1 (1,345 Patients*); Fulguration Considered the Best Treatment*

	No. of Patients with Diameter of Lesions Specified, Cm.			
	Small (Less Than 1)	Medium (1 or More but Less Than 3)	Large (3 to 5 Inclusive)	Total No. of Patients
Total treated	918	275	47	1,240
Treatment				
Fulguration	917	261	39	1,217
Fulguration and radium	1	14	8	23
Total reexamined	262	156	39	457
Interval of reexamination after treatment				
6 mo.	18	10	2	30
1 yr.	42	39	8	89
2 yr.	27	23	6	56
3 yr.	32	20	6	58
4 yr.	32	13	3	48
5 yr. and more	111	51	14	176
Lesion at site of previously removed lesion				
Absent	262	155	38	455
Present	0	1	1	2

* Treatment surgical, 14 patients; no treatment, 91 patients.

From the Section on [illegible] Mayo Clinic, Rochester, Minn.
Read before the Sect[illegible], and Proctology at the Ninety-Seventh Annual [illegible]an Medical Association, Chicago, June 24, 1948.

tion in the bowel. Larger sessile lesions were fulgurated only if they were situated in that portion of the bowel which was thought to be distal to the level of the peritoneal reflection. All pedunculated lesions were fulgurated, without regard for their situation in the bowel, if adequate exposure could be obtained.

As has been said, in 105 cases of group 1, either treatment was surgical or no treatment was given. In 14 of these 105 cases (table 2) lesions were situated near the anus, where they could be exposed satisfactorily, and local surgical excision was performed. The problem of selecting cases in which fulguration is applicable will be discussed in subsequent paragraphs. In 91 instances (table 2) no treatment of the polyps was administered. Fulguration was recommended in all of these cases, but, for various reasons, it was not accomplished. In most of these cases treatment was withheld because the patient was seriously ill from some other disease. In a few cases the patient either refused to accept treatment or went home in order to obtain treatment there.

We do not propose to discuss the histologic structure of polypoid lesions. It should be recorded, nevertheless, that of those cases of group 1 in which the lesion was subjected to biopsy, in none was the degree of malignancy greater than grade 1 (Broders' method). Most lesions were either adenomas or adenocarcinomas of low grade 1 in adenomas. In the latter, malignant change of low grade was observed at the periphery of the polyp. Examination by a pathologist was not made in many cases of this group. The physical characteristics of the lesion (size, mobility, consistency, situation in the bowel and whether or not it has a pedicle) are as significant clinically as the cellular structure, and usually the decision as to applicability of fulguration was reached before the microscopic diagnosis was known.

Group 2.—This group was composed of patients for whose condition fulguration, although not the best treatment, was considered, for one or another reason, to be justifiable. For example, the lesion may have been situated a little high or it may have occupied an unfavorable position on a lateral wall, or on the anterior wall, of the bowel, or it may have been a little large or difficult to expose. Ordinarily such a lesion would not be treated by fulguration. In some cases, however, the patient either was unwilling to submit to a surgical operation or he was physically unfit for it; hence fulguration was performed. On the other hand, although fulguration was considered at least justifiable in this group of cases, for one reason or another it was not always performed. Thus, 10 of the 49 patients in this group were treated surgically (table 3). It should be said here that teamwork of internist, general surgeon and proctologist is especially important when cases of this group are being considered. In 23 (14 plus 7 plus 2, table 3) of the 39 remaining cases in group 2 in which treatment was by fulguration (or fulguration plus radium), the lesion was definitely malignant and in 15 of the remaining 16 cases (1 plus 15, table 3) there were adenocarcinomatous changes, grade 1, in basically adenomatous lesions. The lesions varied from some which were about 1.5 cm. in diameter to others which involved almost the entire rectum.

The lesions were divided into three categories: (1) small—those which were less than 2 cm. in diameter; (2) medium—those which were 2 cm. or more but less than 4 cm. in diameter, and (3) large—those which were 4 cm. or more in diameter.

In 9 cases (7 plus 2, table 3) microscopic examination revealed malignancy of grade 2 or 3. In only 1 of these 9 cases was the lesion 4 cm. or more in diameter. In general then, the grade of malignancy of the small lesions was higher than that of the large lesions. The pathologist's diagnoses were made at biopsy. If serial sections of all growths could have been made, a higher degree of malignancy might have been discovered. In the group of cases in which the lesions were large, the polypoid disease frequently occurred in conjunction with, and as a part of, diffuse hyperplasia of the mucous membrane.

Among the 39 patients of group 2 who were treated by fulguration, the lesions of 5 were pedunculated. We have said that all pedunculated lesions were fulgurated, regardless of their location. Therefore, speculation might arise as to why these growths were not included in group 1. The reason is that in these 5 instances the lesions, which were situated in the sigmoid, were extremely difficult to expose. In fact, in 1 case, three unsuccessful attempts were made to fulgurate a sigmoidal lesion. It was seen on two occasions, but the attachment of the pedicle could not be exposed and it was decided that the lesion could be removed more safely by transcolonic excision. However, when this was attempted, the surgeon was unable to discover the polyp, which was only 1.5 cm. in diameter, and, finally it was fulgurated despite the fact that the site of attachment of the pedicle never was visualized. Proctoscopic and roentgenologic reexamination made one year later gave negative results. Only in rare instances should a pedunculated lesion be fulgurated unless the entire pedicle is visible. This attitude

Table 3.—*Group 2 (49 Patients*); Fulguration Considered Justifiable*

	No. of Patients with Diameter of Lesions Specified, Cm.			
	Small (Less Than 2)	Medium (2 or More but Less Than 4)	Large (4 or More)	Total No. of Patients
Total treated	4	19	16	39
Character of lesion				
Sessile	3	15	16	34
Pedunculated	1	4	0	5
Situation in bowel				
Segment				
Rectum	2	14	16	32
Sigmoid	2	5	0	7
Wall				
Anterior	0	5	4	9
Posterior	3	4	4	11
Lateral	1	10	4	15
All	0	0	4	4
Biopsy				
Adenoma	0	0	1	1
Adenocarcinoma, grade 1 in adenoma	2	6	7	15
Adenocarcinoma, grade 1	0	7	7	14
Adenocarcinoma, grade 2	1	5	1	7
Adenocarcinoma, grade 3	1	1	0	2
Treatment				
Fulguration	0	8	3	11
Fulguration and radium	4	11	13	28
Total reexamined	4	19	16	39
Interval of reexamination after treatment				
6 mo.	0	3	1	4
1 yr.	1	4	3	8
2 yr.	0	5	1	6
3 yr.	0	0	2	2
4 yr.	2	2	1	5
5 yr. and more	1	5	8	14
Lesion at site of previously removed lesion				
Absent	3	15	10	28
Present	1	4	6	11

* Treatment surgical, 10 patients

is maintained for two reasons: First, there may be polypoid tissue at the base of the pedicle, and, second, grave difficulties may arise if hemorrhage should occur. In another case a portion of a pedunculated sigmoidal polyp was fulgurated, but, before fulguration could be completed, the polyp vanished beyond the reach of the sigmoidoscope. Repeated unsuccessful attempts were made to reach the polyp through the sigmoidoscope, and finally it had to be removed transcolonically.

In the sigmoid in each of 2 cases was a sessile lesion which was treated by fulguration and by radium. Each lesion involved the posterior wall at a point 14 cm. internal to the anus. Biopsy of one lesion revealed colloid adenocarcinoma, grade 3, in a growth which was 1.5 cm. in diameter. Biopsy of the other lesion disclosed adenocarcinoma, grade 2, in a growth which measured 3 by 3 cm. The patient in examination of whom the smaller of these two lesions was discovered was examined seven years after the treatment was finished, and no evidence of disease of the bowel was discovered. The patient who harbored the larger lesion remained well, and there was no evidence of malignancy twelve years after conclusion of the treatment. The lesions of these 2 patients were not of a type which usually should be treated by a combination of fulguration and radium. Later in this paper, it will be evident that such treatment of some lesions gave a poor result even though they were situated more favorably than were the two just described and were believed to be suitable for this type of treatment. Our experience with the 2 patients just mentioned demonstrates that in some cases in which fulguration is not the suitable treatment, but in which surgical operation is contraindicated, hope need not be abandoned.

In 28 of the 39 cases in which patients were treated by fulguration, radium also was used. In most of these cases radium was employed only as a precaution against hemorrhage and was applied to the charred mass of fulgurated tissue immediately after completion of fulguration. In such instances, 50 mg. of radium was inserted and was allowed to remain in place for three to four hours. In a few instances in which difficulty was encountered in eradicating the lesion by fulguration, radium was used in larger doses, more frequently, and for longer periods.

Group 3.—This group included patients who received fulguration for its palliative effect only. There were 8 patients in this category, and they were included in this group for the following reasons: 1. Two patients had advanced annular carcinoma, and fulguration was used in an endeavor to maintain the lumen of the bowel and thus prevent obstruction. 2. Four patients had operable lesions, but radical surgical measures were contraindicated because of complicating diseases; fulguration was not expected to effect cure. 3. Two patients had operable lesions, but each refused to permit a radical procedure. In such cases fulguration offers little hope of cure, and the patients accepted it as a palliative procedure.

Concomitant Disease.—Now we shall consider the records of the 238 patients who could not be included in the three main groups because conditions of the colon other than the presence of polyps made evaluation of the results of fulguration difficult.

Chronic Ulcerative Colitis: Eighty-two patients (5 per cent of the entire series of 1,640 whose records were examined) were afflicted with chronic ulcerative colitis, and polypoid disease occurred as a complication. When this combination existed, the ulcerative process usually demanded primary consideration. Fulguration was employed to destroy polyps which could be reached through the proctoscope in 42 of the 82 cases (51 per cent). Forty of the 82 patients could not be treated by fulguration, either because the chronic ulcerative colitis was so active that treatment by fulguration was considered hazardous or because contraction of the lumen of the bowel rendered fulguration impossible. Several of the 82 patients had so-called pseudopolyps or inflammatory polyps. In 72 per cent of the cases complicated by chronic ulcerative colitis the polyps were multiple. Most of the 82 patients were examined periodically for years, and study of their records proved that although new polyps were prone to occur at other sites, polyps were not found where the original lesions had been destroyed. In some instances, of course, as is true also in cases of "multiple polyposis," the original lesions were numerous and, consequently, whether new lesions occupied the site of old lesions could not be ascertained. In such cases, frequent examinations and treatment over a period of several months were necessary in order to control the polypoid disease.

Multiple Polypoid Disease: Thirty-two patients (2 per cent of the entire series of 1,640) suffered from "multiple polyposis," a condition which probably should be termed "multiple polypoid disease of the entire colon." Extensive investigation of the family histories of these patients was not made, but in almost every instance some relative had suffered from a similar condition.

Treatment for the multiple polypoid disease which affected the 32 patients was destruction by fulguration of the polyps in that portion of the colon which could be reached through the proctoscope and removal of that part of the colon which was not thus accessible. At present, we believe that ileosigmoidostomy and colectomy should be performed first and fulguration second. This sequence is preferred because of the risk which attends colectomy. Fulguration may have to be carried out periodically for several months in order to destroy all of the polyps accessible through the proctoscope. To complete all such work, only to see the patient succumb after surgical operation, would be doubly unfortunate. Reexaminations often are necessary for years in order to eradicate the small new polyps which grow in practically all of these cases.

Grossly there are two types of multiple polypoid disease of the colon. In one, the polyps are discrete and the mucous membrane between them appears, grossly, to be uninvolved. In these cases, fulguration can be carried out unless that portion of the bowel to be cleared by fulguration is the site of malignant growth. In the other type, there is a diffuse hyperplastic involvement of the mucous membrane associated with the polyps; thus fulguration usually is not feasible, because the substance of the wall of the bowel must be destroyed in the course of the fulguration and the terminal remnant consequently becomes a useless, scarred and contracted tube. In this group of 32 cases, fulguration of the polyps in the terminal segment of the colon was accomplished successfully in 18 of 19 cases in which it was attempted. In the case in which our effort was unsuccessful, adenocarcinoma grade 2 developed in the rectum and combined abdominoperineal resection was necessary. By "successfully accomplished" we mean that the polypoid disease in the terminal portion of the colon was destroyed and that polyps were not found when the patient was last examined. In 13 of the 32 cases fulguration was not performed. Several patients refused treatment; some preferred to have treatment at home, and in 8 cases fulguration was not considered feasible for reasons too obscure to be evaluated here.

Carcinoma: The remaining 124 patients (8 per cent of the total series of 1,640) had polyps, but they also had carcinomas of the same or different portions of the colon. It should be mentioned that the incidence of 8 per cent of associated malignant lesions is not accurate, because there were some patients in the "multiple polyposis" group and in group 2 who had carcinomas. The malignant lesions were treated by surgical methods, and in some instances polyps were removed with the resected portion of bowel. Those polyps which were not removed in this manner were fulgurated either by way of the rectum or through the colonic stoma. In several instances, polyps were found during a "three way" examination which was performed in an endeavor to determine whether or not a colonic stoma could be closed. During a three way examination, the rectum and a portion of the sigmoid are examined in the usual manner and those portions of the colon which lie proximal and distal to the colonic stoma are examined through this opening into the colon.

SEX; AGE; TYPE, NUMBER AND SITUATION OF POLYPS

Although this paper relates primarily to treatment, some numerical data have been recorded for the entire series of 1,640 cases. Sixty-one per cent of the patients were male and 39 per cent female (a ratio of approximately 3:2). Eighteen per cent of the patients were less than 40 years of age, and 6 per cent were less than 30. The youngest patient was 1 year old and the oldest 82. Seventy-six per cent were between the ages of 30 and 70 years. Sessile lesions occurred three times as often as pedunculated lesions. Often both types of polyps were discovered in the same case. Seventy-four per cent of the patients had single lesions, and 26 per cent had more than one.

Excluding those patients who had polyps in both rectum and sigmoid, 56 per cent of the lesions were found in the rectum and 44 per cent in the sigmoid. In order to make this determination, the rectum was arbitrarily considered to extend 12 cm. internal to the inner margin of the anus. Seventy-seven per cent of the lesions were situated proximal to the middle part of the rectum (about 6 cm. internal to the pectinate line). Except in group 2, in which lesions were relatively large, the wall on which the polyp was situated was not considered significant. In a previous communication, however, one of us has shown that approximately 40 per cent of single lesions occur on the anterior wall.

RESULTS

We urge periodic examination of all patients who have had polypoid lesions of the terminal portion of the colon. The frequency of examinations depends on the seriousness of the condition. Roughly speaking, examination one to three months after completion of treatment is urged for all patients whose lesions were 1 cm. or more in diameter. There is more need for the examination if the lesion was sessile than if it was pedunculated. Often, if the original lesions were large, fulguration of tiny residual portions of polypoid tissue is required several times, at intervals of a few weeks following the first fulguration. The reason for this is that edema develops contiguous to the site of fulguration and, because of this and the spastic activity of the wall of the bowel, the physician is unable to destroy all of the polypoid tissue. When four to six weeks have passed since the original fulguration, the edema usually has subsided and all polypoid tissue can be recognized easily and treated. After that, depending on the observations at the first reexamination, a second reexamination, a month to a year later, usually is recommended. Regardless of the size of the lesion, we do not recommend deferring examination longer than a year. When this paper was written, several patients of the series still were returning annually for reexamination, despite the fact that many years had elapsed since evidence of their disease last had been discovered, so thoroughly had they been impressed with the importance of reexamination. Roentgenologic examination of the colon never should be overlooked in cases in which polyps are found in the course of proctoscopic examination.

In the series of cases on which this paper is based, the plan of reexamination which has been described was followed, not only so that the site of the original lesion might be reexamined but also so that search for new polyps could be made. For our study of results we employed only that information which had been obtained by examination of patients after the lapse of at least six months following treatment. The records of 502 (39 per cent) of the 1,287 patients of groups 1, 2 and 3 who had been treated by fulguration fulfilled this requirement.

In 111 (22 per cent) of the 502 cases, new polyps were found in places which had not been the sites of the original lesions. The results of treatment in the three groups varied considerably, as would be expected. Hence, each group will be discussed separately.

Group 1.—Of group 1, which included those patients for whom fulguration was considered to be the best treatment, 457 of the 1,240 who actually were treated by fulguration were reexamined at least six months following completion of the treatment. The condition of 427 (93 per cent of the 457) was followed for at least a year, and that of 176 (38 per cent of the 457) was observed for five years or more. The longest period was twelve years. Among patients who were examined periodically for five years or longer, it was not unusual for ten to fifteen examinations to be performed.

In only 3 instances did we discover what we believed to be a lesion at the site of an original polyp. Of these 3 cases only 2 are included in a significant part of table 2, for a reason that will be given in the brief report of the third of the 3 cases.

One of the patients was a woman, 60 years of age, who originally had a sessile lesion 2 cm. in diameter on the lateral wall of the upper part of the rectum. Biopsy revealed "grade 1 adenocarcinoma in an adenoma." The first fulguration was performed in July 1936, and, in addition, a small dose of radium was applied. The patient returned four months later, and a polypoid lesion 7 mm. in diameter was discovered at the site of the original lesion. This was fulgurated, and the patient was advised to return in three months for examination. However, she did not return until October 1940, four years later, and again there was a polypoid lesion, 1 cm. in diameter, at the original site. This was fulgurated, and again an attempt was made to impress the patient with the need for frequent reexamination. At the time of the writing of this paper, however (1948), she had not returned. Nevertheless, the physician who referred the patient to us, when responding to our letter of inquiry, stated that the patient was alive in April 1948 and that his examinations of the patient's rectum had not revealed any evidence of disease.

The other patient of the 2, a woman 45 years of age, originally had three "large proliferating masses" in the upper portion of the rectum. The lesions involved all walls of the bowel, and biopsy revealed "low grade 1 adenocarcinoma in an adenoma." The patient was subjected to fulguration periodically for two months (December 1935 to February 1936), and finally the lesions were destroyed. A topical dose of radium was applied on one occasion because of the fear of hemorrhage. During the following four and a half years, small polypoid lesions were fulgurated on five different occasions at, or near, the sites of previously treated polyps. The date of the last treatment was October 1940. Thereafter the patient was examined on numerous occasions and no further polypoid tissue was found. The last examination was made in April 1947.

The latter patient of the 2 whose cases have just been reported required repeated treatment over a period of almost five years, after which the bowel was free of polypoid disease for seven years. She had lesions which were not the most favorable type for treatment by fulguration and which usually are included in group 2. In this instance, however, the proctologist felt that fulguration should be employed, probably because of his desire, and that of the patient, to save the rectum. It is doubtful that his opinion would be the same today, for we have learned from experience that some of the greatest difficulties are encountered while attempting to eradicate by fulguration lesions of this type.

The record of 1 other patient which was included in group 1 is worthy of review.

The patient was a man, 46 years of age, who had a movable sessile lesion, 4 cm. in diameter, on a lateral wall of the middle portion of the rectum. Biopsy revealed that the lesion was an "adenoma." It was fulgurated, and a topical dose of radium was applied. The patient returned for reexamination three months later, and there was an indurated ulcer at the site of the previous lesion. More tissue was secured for microscopic examination, and the pathologist reported "grade 1 adenocarcinoma." A combined abdominoperineal operation was performed. When the removed specimen was examined, malignant or adenomatous tissue could not be found. Was all the malignant tissue removed when the specimen was taken for microscopic examination? Ten years later the patient returned, and evidence of disease was not found. This patient was not included in that part of table 2 which has to do with reexamination because six months had not elapsed following treatment.

Group 2.—The borderline cases which we included in group 2 have been most perplexing to us. Fortunately, they comprised only a small portion, 49 cases (3 per cent) of the series of 1,640 cases. The results of treatment of these patients have not been inspiring.

Opportunity was afforded to reexamine all of the 39 treated patients in this group of 49 for at least six months after the original treatment was concluded. Thirty-five of the patients were reexamined for periods of one year or longer; 14 of these 35 were reexamined for periods of five years or longer, and a few were still returning periodically when this article was being written (1948). The first treatment of some was given as long before the writing of this article as thirteen years.

In 28 of the 39 cases in which treatment was given, new polypoid tissue did not develop at the site of the original lesion. In the 11 remaining cases the result was not so fortunate. In 4 of the 11 cases new lesions developed at the original site of treatment, and in 7 of the 11 it was never possible to eradicate the lesions completely. The 11 cases in which difficulty was encountered were not the same as the 11 in which treatment had been by fulguration only (table 3). In fact, in only 2 cases of the 11 in which treatment had been exclusively by fulguration did difficulty arise.

Of 4 patients (table 3) whose original lesions were less than 2 cm. in diameter, reexamination of 3 gave negative results, one year, four years and seven years, respectively, after treatment. The third of the 3 patients just mentioned had had a colloid adenocarcinoma, grade 3, in the lower portion of the sigmoid. This patient was mentioned in the next to the last paragraph in that description of group 2 which was given under the general heading "Categories." The second of the 3 patients just mentioned had had an adenocarcinoma, grade 2, measuring 1 cm. in diameter on the posterior wall of the middle portion of the rectum, the ideal situation for fulguration. Concerning the first of the 3 patients just mentioned there is nothing significant to report. The fourth patient of the group of 4, however, originally had three polypoid lesions, each less than 2 cm. in diameter, on the posterior wall of the middle part of the rectum. The largest measured 1.5 cm. in diameter, and microscopic examination revealed "grade 1 adenocarcinoma in an adenoma." The mucosa between the lesions was hyperplastic, and consequently the entire area required fulguration. At the time of writing of this article, this patient had returned every three months for observation. The original treatment was administered in 1944. On three subsequent occasions, fulguration was applied to small portions of polypoid tissue which had developed at the margin of the scars when the areas had healed after previous treatment. For the six months before this report was compiled there had been no new development of polypoid tissue.

Nineteen patients (table 3) had original lesions which were more than 2 cm. and less than 4 cm. in diameter. Reexamination of 15 of these patients gave negative results six months to twelve years after treatment. Eleven of the 15 were reexamined periodically for two years or longer. Difficulty was encountered in the remaining 4 of the 15 cases. Of these 4 patients, 3 had adenocarcinomas, grade 2, and one had an adenocarcinoma, grade 1, at the time of the first examination. A short review of our experience with each of these 4 patients is appropriate.

One, who was a man 47 years of age, originally had a freely movable lesion, measuring 2 by 3 cm., on a lateral wall of the upper portion of the rectum. It was an adenocarcinoma, grade 2. The condition was treated intensively by fulguration, and much radium was applied for nine months, but the lesion was never eradicated. Finally, colostomy was performed, and this was followed by radical posterior resection. The resection was performed with great difficulty, and probably all of the malignant tissue was not removed, because the lesion recurred, or persisted, and the patient died twenty-one months after treatment had been begun.

In retrospect, it seems probable that the lesion in this case should not have been fulgurated. At first, however, the patient refused to accept the radical surgical treatment which was offered him, and we were obliged to employ the only method of treatment which he would accept.

This sort of complication brings up an interesting question concerning fulguration. If a patient is in condition to undergo a major surgical operation which he needs, but he refuses to accept such treatment, how far should the physician go in an attempt to substitute fulguration? Certainly fulguration should not be discussed until all attempts to convince the patient of the error of his decision have failed. If fulguration is to be tried, the patient should be made to understand that it may fail, and he should agree in advance that if it does fail he will accept the proper radical surgical treatment. After fulguration is begun, it is important to know how soon it can be recognized that the method will or will not produce the desired result. As a rule, it should be possible, if the lesion is single, to make this decision within eight to ten weeks after the entire growth has been fulgurated. If the result is going to be favorable, the ulcerated area, which replaces the lesion which has been fulgurated, soon should show evidence of healing and the adjacent tissues soon should become pliable, soft, movable and present a healthy appearance. If, after eight to ten weeks have elapsed, malignant tissue is still present, if the patient complains of pain, or if there is induration, immobility or other evidence that progress is unsatisfactory, then radical operation should be performed. Continuance of fulguration after such conditions have been discovered avails little, and often a prolonged course of fulguration produces perirectal inflammation and adhesions which make it difficult, if not impossible, to dissect the rectum free from the bladder, vagina or other pelvic structures when resection is attempted.

The second patient was a woman 63 years of age, who had a recurring adenocarcinoma, grade 1, of a lateral wall of the upper portion of the rectum. The lesion measured 1.5 by 3 cm. The woman had been treated by means of radon seeds by her home physician because she had refused colostomy. We found that she had gout and renal insufficiency. One of us treated the lesion by fulguration periodically for nineteen months, but it never was controlled and an obstructive mass developed despite our effort. One year after she had come to us she submitted to colostomy. That was in June 1943, and our record indicated that, as this report was being prepared, she was still alive. Evidently the colostomy was performed as a palliative procedure. Is it possible that radon seeds and fulguration could have inactivated the malignant process?

The third patient, a woman 75 years of age, had a growth in the sigmoid. She was accepted for fulguration because of her age and because the lesion, which was an adenocarcinoma, grade 2, had a very short pedicle. Fulguration had to be discontinued because of "rather profuse bleeding," and the lesion finally was removed transcolonically. The patient was well nine years after the surgical operation.

The fourth patient concerning whom difficulty arose was a man, 56 years of age, who had an adenocarcinoma, grade 2, 3 cm. in diameter, on the anterior wall of the upper portion of the rectum. This patient was accepted for fulguration because he wished to avoid colostomy. After the first course of fulguration had been completed, he was advised to return for reexamination in three months. He did not return until five years later, when we discovered an annular constricting lesion in the rectosigmoidal region. He again refused operation and died a year later; six years after the original lesion had been treated. Obviously, this lesion grew very slowly, and one might wonder whether it could have been eradicated if the patient had cooperated.

Sixteen patients (table 3) originally had lesions 4 cm. or more in diameter. Ten of the 16 patients were examined at intervals for periods which varied from six months to nine years. In 7 of the 10 cases, the shortest period of observation was two years. The final proctoscopic examination of these 10 patients revealed no disease.

In the remaining 6 of the 16 cases results were disappointing. In 3 of these 6 cases, biopsy revealed adenocarcinomatous changes, grade 1, in basically adenomatous lesions; in 2, adenocarcinoma, grade 1, and in 1, adenocarcinoma, grade 2. The smallest lesion discovered at original examination of these 6 patients involved the posterior half of the rectum for a distance of 8 cm., and in 2 of the 6 cases the growth involved about three fourths of the entire rectal wall. All lesions in the 6 cases were soft and freely movable. In 4 of the 6 instances the lesions were never brought under complete control, and in 2 they were brought under control only after three and four years, respectively, of extensive treatment. In all 6 cases strictures of the rectum developed; in addition, a rectovaginal fistula developed in 1 of the 6 cases and abscesses in 2 of them. All 6 patients were treated extensively by fulguration, and radium was administered. Of 3 patients of the 6 in whose cases biopsy revealed "grade 1 adenocarcinoma in an adenoma," 2 lived for six years and the other lived for seven years after treatment had been begun. Of 2 patients of the 6, in examination of whom adenocarcinoma, grade 1, was found, one lived four years; the other was living four years after treatment had been begun but thereafter did not appear for reexamination. One patient of the 6, examination of whose lesion revealed adenocarcinoma, grade 2, lived only one year after treatment had been begun. This patient originally had several polypoid lesions in the rectum and some higher in the colon, but his general condition at no time during treatment permitted radical surgical operation, which otherwise would have been the procedure of choice.

We have said that 16 patients originally had lesions 4 cm. or more in diameter and that examination of 10 of the 16 at periods varying from six months to nine years gave negative results. Massive or disseminated involvement of the bowel was found at original examination of only 2 of these 10 patients. In the other 8 cases of the 10, the lesions, which were discrete, averaged 4 to 5 cm. in diameter, and there was no evidence of hyperplasia of the adjacent mucosa. Biopsy of the lesions in these 10 cases disclosed a degree of malignancy comparable to that which was discovered in all but 1 of the 6 cases in which results were disappointing. In 2 of the 10 cases the lesions involved the posterior wall only.

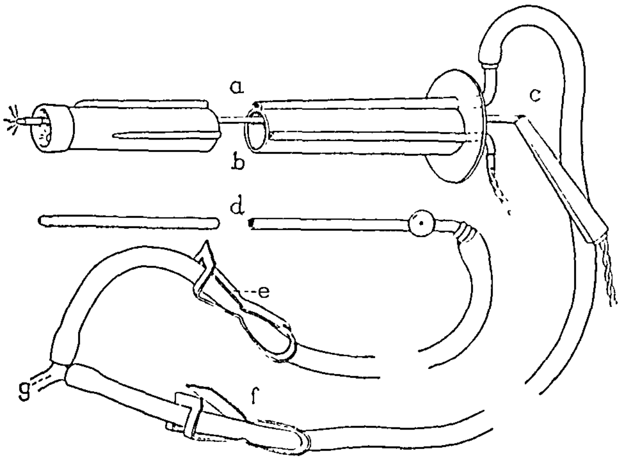
Group 3.—This was the group of 8 cases in which fulguration was administered only as a palliative measure. Results were more favorable than had been expected.

Two patients, men, 75 and 77 years of age, respectively, had annular fixed lesions in the upper portion of the rectum; these lesions were treated by fulguration and application of radium in an attempt to preserve adequate lumens. One of the 2 patients died one year following completion of treatment; the other was living nine years after treatment had been concluded, when proctoscopic examination revealed no gross evidence of regrowth of the lesion. This patient was examined frequently during the nine year period of observation, and small portions of polypoid tissue were fulgurated on several occasions. Biopsy revealed adenocarcinoma, grade 2, in both of these cases.

The remaining 6 patients (of the 8), who appeared to have operable lesions, were not operated on, either because they refused to accept radical surgical measures or because concomitant disease contraindicated radical surgical operation; all had adenocarcinomas of the rectum, grade 1 or grade 2. One of these, a woman 56 years of age, had an infiltrating lesion, grade 2, 6 cm. in diameter, on a lateral wall of the upper portion of the rectum. Her lesion appeared to be under control ten months after fulguration, but she died two months later, of coronary occlusion. The lesions of the 5 other patients of the 6 could not be controlled by fulguration and radium: 2 died within one year after this treatment had begun; 1 lived eight years; another was alive two years after treatment but was failing rapidly; the fifth was not seen after the treatment ended.

THE PROPER ATTITUDE CONCERNING FULGURATION

Fulguration plays an important part in the treatment of polypoid disease of the terminal portion of the colon but much care must be exercised in determining when it should be employed. In some instances, a lesion may possess characteristics which are favorable for fulguration, yet to employ it may be unwise or even hazardous because of other characteristics which are unfavorable.



Fulgurating proctoscope with suction apparatus: *a*, suction tube for smoke; *b*, tube for light carrier; *c*, fulgurating electrode; *d*, suction tube for liquid; *e* and *f*, clamps on rubber tubing to permit aspiration of either smoke or liquid; *g*, glass connection with source of suction.

We shall consider six factors which deserve attention while attempting to arrive at this decision:

Size of the Lesion.—Small sessile lesions can be fulgurated with little regard to their position in the bowel, and frequently we fulgurate them at the time of the original proctoscopic examination. What is meant by "small lesions?" No specific measurement can or should be laid down in answer to this question. However, if it is agreed that special care must be exercised while fulgurating lesions in the mobile portion of the sigmoid, where too much destruction of the wall of the bowel might result in perforation into the peritoneal cavity, it can be stated that sessile lesions of a diameter as great as 6 mm., or possibly 8 mm., may be fulgurated, even in that area. Of course, larger sessile lesions may be fulgurated if they occupy positions where fulguration can be performed thoroughly without danger (for example, the posterior wall of the lower two thirds of the rectum). A lesion which has a well defined pedicle may be fulgurated regardless of size or situation, provided that adequate exposure of the polyp and of the entire pedicle is obtainable. In group 1, which included patients for whom fulguration was considered the best treatment, there were only 5 patients in examination of whom sessile lesions 4 cm. or more in diameter were discovered. Cases in which lesions were large and disseminated, and cases in which large areas of the rectal mucosa were hyperplastic, were those in which the most trouble was encountered. Even in cases wherein it seemed that we had brought the lesions under control, after several years of treatment, strictures always developed. Although disseminated lesions usually are adenomatous, or of low grade of malignancy, and although they tend to remain in situ for long periods without undergoing metastasis, experience has taught us that they should be treated surgically. The expense, the prolonged period of treatment and the amount of disability which persists after treatment attest to the fact that in these cases fulguration is not the method of choice. On the other hand, lesions which may be just as large, as far as cubic content is concerned, but which do not extend over so much of the bowel wall, may be fulgurated successfully.

Situation of Lesion.—Fulguration is best applied to lesions which lie caudad to the peritoneal reflection. There is great variation in the location of the peritoneal reflection. The posterior wall of the rectum is covered by peritoneum to a less extent than the lateral and anterior walls. When dealing with lesions which involve the anterior wall, it is necessary constantly to bear in mind the proximity of the vagina, the uterus, the urinary bladder, the seminal vesicles and the prostate gland. The ideal location of a polypoid lesion, as far as fulguration is concerned, is the posterior wall of the middle portion of the rectum or the lower part of the rectum. Few lesions are so ideally situated.

Consistency of Lesion.—The softness or firmness of a lesion can be ascertained by palpation and, even when it cannot be reached with the examining finger, almost as much can be learned by "palpating" the growth with the proctoscope. The least degree of firmness should warn the examiner that there is a greater likelihood that malignancy is present.

Mobility of Lesion.—Lesions which are favorable for fulguration must be freely movable. Any limitation of mobility indicates that infiltration into the deeper coats of the bowel has begun.

Condition of Mucosa Which Is Contiguous to Lesion.—While hyperplasia of the mucosa adjacent to a small polyp probably is of no great significance, and would not contraindicate fulguration, it should serve as a warning that new lesions are likelier to occur and that careful observation is necessary.

Microscopic Examination and its Implications.—Benign polyps (adenomas) should be fulgurated if they are favorably situated and are of suitable size and shape. Malignant transformation in adenomas can be detected by experienced pathologists, and in such cases the grade of malignancy is seldom more than 1. Careful biopsy rarely should fail to reveal such malignant change, because it occurs first in the periphery of the lesion. When malignancy has been detected, it is necessary to weigh it together with all clinical factors. If the latter are favorable, in many such cases the less severe procedure, fulguration, is not only justifiable but preferable.

If the clinical factors are not favorable, some surgical procedure becomes necessary, regardless of the pathologic content of the lesion. For adenocarcinomas which apparently do not have their origin in adenomas, surgical operation is always the treatment of choice. However, if the patient will not accept such treatment or if his condition will not permit it, fulguration with or without radium should be considered. It should be reiterated that fulguration should not be discussed until all attempts to convince the patient of the error of his decision have failed.

TECHNIC OF FULGURATION

The term "fulguration," as we employ it, designates a procedure intended to destroy a growth by means of an electric spark which emanates from the electrode of a monopolar (Oudin) current. A bipolar current may be used. While a lesion is being fulgurated, the tip of the electrode should be held so that the spark will leap approximately 5 to 6 mm. from the electrode to the surface of the growth. In this manner, the superficial layers of the polyp are first dried and later charred. Soon, an actual flame extends between the tip of the electrode and the tissues. After fulguration has been completed, a charred mass of tissue replaces the polyp. Fractional fulguration for indefinite periods may be necessary in order to destroy large lesions. In the case of pedunculated lesions, the site of attack may be the junction of the polyp and the pedicle. If this juncture cannot be exposed and sometimes even if it can, and the polyp or pedicle is large, the body of the polyp should be fulgurated. Care must be exercised when fulgurating a pedicle, because often the pedicle carries a large artery. Sometimes, also, the peritoneal surface of the bowel wall is drawn into the pedicle.

A proctoscope which is suitable for use while performing fulguration includes a built in suction tube through which smoke and gas can be exhausted from the bowel during fulguration (figure). If such suction is not available, gas within the bowel may ignite or explode. Also, a means must be provided for exhausting stool and fluids from the bowel. The surface of the lesion must be kept dry during fulguration.

In most instances, anesthesia is not necessary or desirable. General anesthesia never should be employed. When the lesion is close to the anus or actually involves it, or when adequate exposure cannot be obtained, caudosacral anesthesia may be employed.

Complications of the procedure are rare. Hemorrhage was encountered in only 7 instances in this series, and in only 1 was transfusion necessary. Hospitalization over night was deemed advisable in 5 cases. All complications occurred in cases in which there were massive lesions in the rectum and in which extensive treatment was required. In most of these, some degree of stricture of the rectum occurred. In 2 cases perirectal fistulas developed and in 1 a rectovaginal fistula.

CONCLUSIONS

1. Fulguration is an effective method, but great care must be used when selecting patients for this type of treatment.

2. Usually a pedunculated polyp may be fulgurated, regardless of its size or position in the bowel, provided that adequate exposure of the polyp and the entire pedicle can be obtained.

3. Large sessile polyps require more careful consideration. If such a polyp must be fulgurated, the ideal situation for it is on the posterior wall of that portion of the rectum which is not covered by mesentery. In that location there is little danger of injuring a vital structure, should it be considered necessary to destroy the wall of the bowel during the process of fulguration.

4. Malignant lesions deserve even more serious consideration than that which is given large sessile polyps. In order for treatment of these lesions to be at all successful, that portion of the wall of the bowel to which the growth is attached must always be destroyed. Consequently, such lesions should not be attacked by fulguration unless they involve the posterior wall of the rectum and only that portion of the rectum which lies distal to the peritoneal reflection. It is possible that malignant lesions which are not so ideally situated may respond favorably to fulguration, but they should not be so treated unless proper radical surgical measures are contraindicated or are rejected by the patient.

5. Large disseminated polypoid lesions, whether benign or malignant, and those which are associated with diffuse hyperplasia of the mucous membrane respond poorly to fulguration, either when it is used alone or in conjunction with radium therapy. Radical surgical treatment is indicated in such cases. In fact, the same attitude should be adopted in regard to such conditions as that which is maintained in connection with the management of malignant disease.

ABSTRACT OF DISCUSSION

Dr. Martin S. Kleckner, Allentown, Pa.: I have never heard a more concise or detailed presentation on this subject than that by Dr. Buie and Dr. Hill. I have not been surprised at the frequency with which early malignant conditions have been observed by the pathologist, because their observations closely approximate those of other investigators in this field. In using fulguration as a means of eradicating a simple adenoma or to blot out an existing adenomatous polyp which shows malignant changes, they deserve commendation, particularly when they have attempted fulguration to the polyps of the larger size when surgical intervention has been refused or senility and other infirmities make operation hazardous. The authors are justified in approaching this problem by attempting to remove these potential as well as early malignant growths by the method of electrofulguration. However, as one who has had a basic general surgical training, I would hesitate in attempting to remove those sessile early malignant polyps which measure 3 to 4 cm. and over in diameter by other than surgical intervention unless the contraindications were so outstanding that fulguration alone gave the patient the better chance for survival and cure. It is ofttimes very difficult to determine the resultant depth of the slough following fulguration, and I believe that only those trained in the use of this method and well acquainted with the anatom, of the terminal bowel should attempt polypoid removal because of possible perforation. I have had some very good results by the use of fulguration in the eradication of single polypoid growths. Its use in multiple polyposis is excellent in that the rectum may ofttimes be freed of all disease and facilitate future colonic surgical treatment. I wish to emphasize a few statements which in large measure coincide with the facts presented. 1. The smaller lesions invariably show a higher grade of malignancy when present than those of larger size. 2. Pedunculated growths are easier to eradicate but are not as frequently seen as the sessile lesions. 3. The palliative use of fulguration in cases in which operation is contraindicated, performed to maintain the lumen of the bowel and prevent obstruction, is frequently of great temporary value but dangerous. 4. Eradication of polyps from the terminal bowel by fulguration is an excellent procedure but is safe only in the hands of experienced operators. In multiple extensive polyposis, partial or complete colectomy may be necessary for cure, to be followed by ileosigmoidostomy or ileostomy alone. The proctologist (surgeon), the pathologist and the radiologist must combine their efforts in all these cases in order to determine the best operative method to use. 5. The use of radium in some cases and the roentgenologic aid in most cases usually is needed to provide satisfactory knowledge and cure.

Clinical Notes, Suggestions and New Instruments

SEVERE LITHIUM CHLORIDE POISONING WITH COMPLETE RECOVERY

Report of Case

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This syndrome followed the use of a commercial salt substitute containing lithium chloride, citric acid and potassium iodide. The changes which occurred were profound and severe, yet transient, and the patient made a rapid and complete recovery. The signal symptoms and signs as they successively occurred over a period of a week included anorexia, rapid change in personality, lethargy, dysphagia and pain on swallowing, bradycardia, cutaneous hyperesthesia and hyperalgesia, muscular hyperirritability, profound general and multiple myoclonus and mental obfuscation.

REPORT OF CASE

The patient was an 82 year old man previously rather vigorous and alert. He was hospitalized January 9 at the Cedars of Lebanon Hospital, Los Angeles, on arrival from another locale for further convalescence. Immediate previous diagnoses included: (1) simple fractures, right fourth, fifth and sixth ribs incurred Dec. 11, 1948; (2) rectal prolapse; (3) urinary bladder retention and infection; (4) bronchopneumonia with onset on Dec. 27, 1948, and (5) arteriosclerotic heart disease with slight cardiac hypertrophy and moderate congestive heart failure. He had a past history of various disorders of the urinary tract including stones, retention and infection and episodes of gouty arthritis in 1942 and 1947.

His convalescence was proceeding well, but he had exhibited some slight edema of the feet and an increase in congestion at the bases of the lungs. On January 12 his usual digitoxin dosage was increased from 0.1 to 0.2 mg. daily; he was given 1 cc. of meralluride sodium solution intramuscularly (and 2 cc. on the following day), put on a "salt-free" diet—which contained about 1 Gm. of sodium chloride daily—and given as salt substitute westsal® (a liquid containing lithium chloride, citric acid and potassium iodide). From January 12 to January 17, when westsal® was discontinued and a practically general diet offered the patient, but which he would not eat, about one-half bottle of the westsal®—or about 1¼ ounces—had been ingested. Although only minor diuresis occurred, the edema of the dorsum of the feet cleared and the congestion at the lung bases improved. On January 14 and January 15 he was given 0.2 mg. of digitoxin twice daily. By January 16 his weight had dropped 3 pounds (1.3 Kg.). Digitoxin was discontinued on January 16.

Results of laboratory investigations during his first week were as follows:

Blood sugar was 102 mg. and blood nonprotein nitrogen 39 mg. per hundred cubic centimeters. The urine had a specific gravity of 1.018, gave a neutral reaction and contained numerous pus cells. There were 4,600,000 red blood cells and 9,000 white blood cells, with normal differential count. Red blood cells and platelets appeared normal. Hemoglobin was 13.2 Gm. per hundred cubic centimeters. Blood sedimentation rate was 23 mm. in one hour, Wintrobe method. Urine culture revealed Pseudomonas aeruginosa. Phenolsulfonphthalein (intravenous) excretion test revealed a volume of 40 cc. with 17 per cent dye in the first at 15 minutes, 155 cc. with 14 per cent dye in the next at one hour. Total excretion in one hour was 31 per cent.

The patient continued to do well, attempting to be up a little too much walking about his room, except that he continued unable to void spontaneously. An indwelling catheter was used. Sulfadiazine and four days (3 Gm.) of dihydrostreptomycin therapy, and then mandelic acid therapy was given. On January 15, Dr. Kutzmann, the urologic consultant, ordered carbachol in an attempt to initiate urination. After the third tablet, the patient had a reaction consisting of profuse perspiration and the appearance of cardiac extrasystoles for the only time during my observation of him. Blood pressure was 148 systolic and 70 diastolic. The administration of atropine shortly stopped the reaction, and there was no residual evidence at the end of two hours, the heart rate and tone again being normal. Bladder retention was not helped. His abnormally reddened tongue was considered a deficiency sign, and crude liver extract and vitamin B complex were given intramuscularly daily.

On January 16 and 17 he appeared depressed and a little feeble and his appetite was not good. His weight was 140 pounds (63.5 Kg.). He had lost perhaps 2 pounds (0.9 Kg.) for the diuresis following the administration of meralluride was slight. On January 17 his heart rate continued regular, but varied from 60 per minute down to 48. An electrocardiogram on this date revealed no changes from the previous tracings and no evidence of digitalis intoxication. Digitoxin had been discontinued on January 16 when his appetite started to decrease.

On January 18 (ninth day after return to Los Angeles) he had distinctly failed. He was markedly depressed and physically feeble. His heart tones were of good quality, but the rate was now 42 to 40 per minute constantly. A fine punctate rash on his legs had spread somewhat, but chronic eczematous scaling patches on his neck and back which had been present for several years appeared as usual. He was not catheterized for thirty-six hours because he was so extremely concerned about not being able to void and he had a spillover of about 2 ounces at a time. At the end of this time he had a 1,000 cc. bladder retention although no distress, and an indwelling catheter was again replaced.

On January 19 he was further depressed and vomited his breakfast. All oral medication had been stopped three days previously. He vomited again only once or twice during the future course. His tongue was now beefy red, despite crude liver extract and vitamins intramuscularly for the five previous days. His heart rate was 50 and his blood pressure 130 systolic and 70 diastolic.

Blood cell count revealed 13.9 Gm. hemoglobin per hundred cubic centimeters, 4,950,000 red blood cells and 16,600 white blood cells with 81.5 per cent polymorphonuclear cells, 14 per cent lymphocytes, 2.5 per cent monocytes, 0.5 per cent myelocytes and 1 per cent metamyelocytes. The erythrocytes continued normal in size and shape; the neutrophils showed slight toxic granulation. Other laboratory tests revealed 55 mg. nonprotein nitrogen, plasma chlorides 545 mgm. per hundred cubic centimeters and carbon dioxide-combining power of 35 volumes per cent. He was given 500 cc. of sixth molar sodium lactate intravenously to combat the acidosis. On the evening of January 19 a few irregular fibrillary twitchings of the left arm were noted, but none were seen subsequently.

Dr. Maurice Rosenfeld and Dr. Verne Mason, internists, were in consultation on January 20. He had been reluctant to swallow for two days and now refused to, complaining of actual pain deep in the neck particularly on swallowing. His neck was not stiff and changes were not evident in the pharynx or the neck. He had for the first time distinct muscle guarding in the right side of the abdomen only and apparent tenderness in mid right hypochondrium. Palpation of any point in the right side of the abdomen caused distress and a distinct slow clonus of the right abdominal muscles only for a duration of about 5 to 10 seconds. He was given 2,000 cc. of 5 per cent dextrose in water and sodium chloride solution with vitamins in large doses (nicotinamide to total of 700 mg.).

Laboratory studies revealed blood creatinine 2.1 mg., uric acid 5.2 mg. and calcium 9.7 mg. per hundred cubic centimeters.

On January 21 (fifth day of retrograde change) he could be roused, at times answered rationally and responded to requests, but fell immediately back to sleep again. He continued to refuse to swallow. There was a great increase in physical muscle and skin irritability. Even stroking of skin caused flinching and thrashing about with evident distress. When a needle puncture of the skin was made for a blood test, he cried out. There was pronounced irregular clonus when his muscles were tapped. He mildly resisted flexion of the neck. He constantly held his legs crossed together in scissor fashion, and any attempt to uncross them caused strong adduction spasm with evident pain. Otherwise he was fairly quiet. His tendon reflexes remained unchanged, although perhaps slightly diminished. However, both of his great toes assumed a position of dorsiflexion. He continued afebrile. Palpation revealed a sensation of mass in the right midhypochondrium, and there was tenderness just under the rectus muscle.

A nasal tube was passed and he was given whole milk, added milk proteins, eggs, fruit juice, corn syrup, vitamin and brewer's yeast concentrated and nicotinamide to total about 2,000 cc. daily.

On January 22 he continued conscious but seemed asleep most of the time. He answered incoherently to questions. He continued to refuse to swallow. He had occasional jactitation and occasional marked spontaneous scattered clonus, not of any distinct muscle groups. The peculiar muscle and skin hyperesthesia continued but were not now constant on stimulation. His legs continued irritable in adductor spasm. The pulse rate rose to 70 once during the day, then went back to 48.

The urine had a specific gravity of 1.017, was acid, acetone negative, with numerous white blood cells and 0.36 Gm. urinary chlorides in twenty-four hours. Blood sodium was 313 mg., blood potassium 17 mg., calcium 9.4 mg. and phosphorus 2.8 mg. per hundred cubic centimeters. Serum albumin was 3.8 Gm. and serum globulin 3.0 Gm. per hundred cubic centimeters; the blood Kline reaction was negative. The electrocardiogram revealed no significant changes except that the T waves in lead 1 and in the chest leads appeared more normally upright than in previous leads, where T waves were low.

On January 24, lumbar spinal puncture was done and the fluid was clear under initial pressure of 120 mm. The laboratory reported total protein 16 mg. and sugar 81 mg. per hundred cubic centimeters; the Pandy test for excess globulin gave a negative reaction; the Wassermann reaction was negative and the gold curve was 0001100000. The urine was alkaline with normal acetone and bile, normal urobilinogen and 10 to 15 white blood cells.

On January 25 he answered rationally but did not speak voluntarily and had difficulty in articulating. He still kept his legs crossed and urgently resisted separation of them. As from the first, even the washing of his scrotum or the lower part of the abdomen caused much pain. The heart rate was now for the first time again at a steady 70, after eight days of bradycardia; the blood pressure was 130 systolic and 70 diastolic. The scaling erythematous patches on the anterior part of the neck and the back were clearing.

On January 26 he was rational but remembered nothing of the previous several days except that Dr. Nielsen had scratched his feet repeatedly. He was able to swallow satisfactorily, and intubation was discontinued. In the right side of the abdomen there was only slight resistance, no tenderness and the sensation of mass was almost gone.

Thereafter he improved rapidly. By January 31 the signs of muscle and skin irritability had cleared, although his soles were inordinately sensitive. Clonus cleared entirely on January 27. He had practically returned to his usual full mental alertness and was eating well and was up and walking about with no residuals.

By February 4 he was alert and cheerful. The indwelling catheter had been removed on February 1, and he continued to void spontaneously. He continued to have variable basal lung rales which were considered hypostatic. He walked and at no time exhibited any motor impairment. The old skin lesions on the neck and back cleared on high nicotinamide dosage, reappeared on dosages of 150 mg. daily and started to clear again on dosages of 400 mg. or more daily.

At the time of occurrence of this case, the possible toxic effects of lithium chloride were not known. The whole syndrome appeared with no evident reason in a convalescent patient who was doing well; who had, for four days before the onset been placed on a low sodium intake; who had some therapy to eliminate excess body fluid; who during this period had a most profuse induced episode of sweating, and who had during this four days ingested at will about 1¼ ounce liquid salt substitute (westsal®) consisting of lithium chloride, citric acid and potassium iodide. It is believed that an electrolyte disturbance occurred in the body fluids with either a toxic level of lithium occurring or a toxic effect from some change in the lithium chloride preparation. (One other patient reported practically simultaneously that a fresh, unopened bottle of westsal® had "turned blue.") Management consisted of early cessation of the medications, one day's therapy with intravenous administration of sixth molar sodium lactate and then dextrose and sodium chloride solution and thereafter five days of tube feedings of a full nutritional mixture. On this schedule the patient remained in a desperate state for five days, and then rapidly, recovered. Within a week, all evidence of the peculiar syndrome had cleared. It is believed that this case is one of severe poisoning due to westsal® with full recovery.

Council on Foods and Nutrition

This paper was prepared at the request of the Council and is one of a series appearing in the Journal. Later the entire series will appear in book form as the Council's Handbook of Nutrition.

James R. Wilson, M.D., *Secretary.*

FLUORINE AND OTHER TRACE ELEMENTS IN NUTRITION

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There have been important developments regarding the effects of fluorine on dental caries which justify the optimistic view that dental caries may be partially controlled by some form of fluoride therapy. The direct fluorination of drinking waters of large communal centers is in process of study as a caries control measure and represents a unique and heretofore unutilized approach toward a mass preventive in medicine and dentistry. The first direct fluorination of community water was begun on Jan. 28, 1945, in Grand Rapids, Mich. Other cities now artificially providing 1.0 part per million of fluorine in their drinking water are, Newburgh, N. Y.; Brantford, Ontario, Canada; Midland, Mich.; Sheboygan and Madison, Wis.; Evanston, Ill., Ottawa, Kan., and Marshall, Texas. No foodstuff in the average American diet can compare with drinking water containing 1.0 part per million or more of fluorine as a source of fluorine in human nutrition, but it cannot be said at this time that fluorine is an essential trace element even for purposes of dental health. Although it may become a recommended dietary procedure to supplement children's diets with an optimum quantity of fluoride, wherever a fluoride drinking water is not available, present evidence does not justify dietary addition of fluorine.

From the National Institute of Dental Research, National Institutes of Health.

Because of lack of space this article has been abbreviated in The Journal by omission of the bibliographic references. These will be included in the article as it will appear in the Council's Handbook of Nutrition.

Fluorine research has afforded a striking demonstration of the relatively narrow margin of physiologic benefit and physiologic toxicity which characterizes many trace elements. Optimum effects of fluorine on dental caries, thus, are associated with 1.0 part per million of fluorine in the drinking water,[1] whereas 1.5 parts per million or slightly more fluorine is the beginning level of endemic dental fluorosis.[2] The dietary conclusion is obvious, therefore, that the indiscriminate use of fluoride supplements must be condemned.

In addition to fluorine, manganese, cobalt, zinc and boron are discussed in this review, which continues in point of time from a previous review by Shils and McCollum,[3] published in an earlier issue of the Handbook of Nutrition. A number of other reviews concerning minerals in nutrition have appeared in recent years.[4]

FLUORINE

Fluorine and Dental Caries.—The epidemiologic evidence which demonstrated that excessive fluoride in drinking water is the cause of endemic mottled enamel [2] also suggested the fluorine–dental caries relationship, now conclusively associated with domestic waters of optimal fluoride content.[63] In one of the most important of the epidemiologic fluoride studies intensity of dental caries attack in school populations (12 to 14 year old children) in eight suburban Chicago communities was inversely correlated with 0.0 to 1.8 parts per million of fluorine in the drinking water.[64] Outside the United States similar confirmatory results have been reported.[65] Figure 1 is a summary graph of the results of the epidemiologic fluoride studies of Dean and his co-workers.[66]

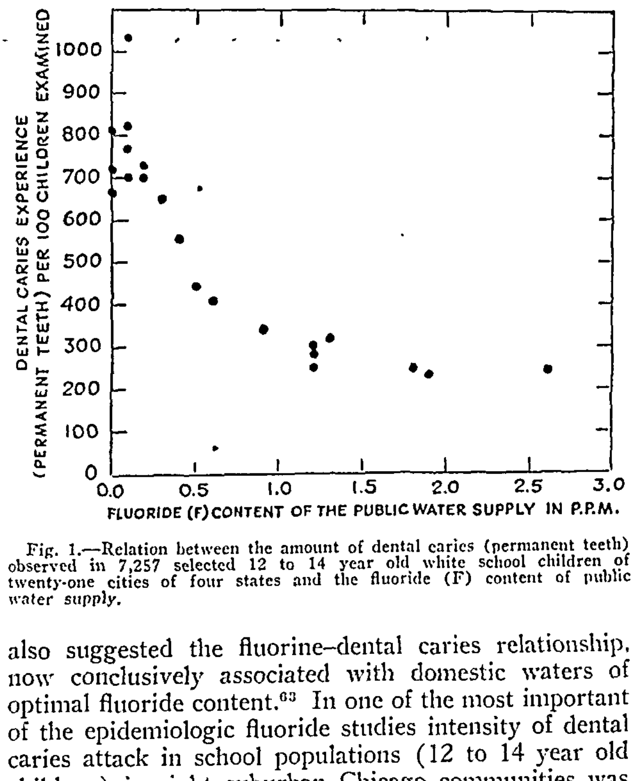

Fig. 1.—Relation between the amount of dental caries (permanent teeth) observed in 7,257 selected 12 to 14 year old white school children of twenty-one cities of four states and the fluoride (F) content of public water supply.

Whereas inhibition of caries has been demonstrated conclusively for 12 to 14 year old children continuously exposed to fluoride waters, only a few studies apply to older persons. Deatherage observed reduced caries in adult male inductees exposed to fluoride waters [67] starting even after their eighth birthday.[68] Weaver [69] extended his observations in England to older persons and studied effects of time of initial fluoride exposure on caries attack. He suggested that "fluorine is a caries-postponing rather than a caries-preventing factor," [70] a suggestion which does not discredit the significance of fluoride waters for caries control in younger persons. A recent report by McKay [70a] is contrary to Weaver,[70] and suggests that resistance to caries, as produced by exposure to fluoride drinking waters, continues into adult life. Both of these reports are based on small numbers of individuals. They permit no conclusions in these regards and mostly emphasize the uncertainties surrounding the mechanism and the duration of the fluoride anti-caries effects.

Experimental results give consistent support to the human caries–fluoride relation; i. e., (*a*) induced experimental caries in small animals is fluoride inhibited;[71] (*b*) dental tissues contain fluorine which may be classified as primary fluorine acquired during growth and calcification of the teeth,[72] secondary fluorine acquired after tooth eruption [73] and adsorbed secondary enamel fluorine,[74] acquired possibly by local oral enamel surface adsorption; (*c*) reduced solubility [75] and surface changes in enamel [76] and dentin [77] are attributed to fluoride reactions on dental tissues in vitro; (*d*) fluoride may affect oral bacterial activity [78] and exert antienzymatic effects possibly involved in causation of dental caries,[71b] and (*e*) the ameloblasts (enamel-forming cells) are extremely sensitive to fluorine.[79]

Perhaps the simplest explanation of the fluorine anti-caries action would point to fluorine in dental tissues. Limited analytic data reported by Armstrong and Brekhus [80] support the view that enamel of carious teeth contains less fluorine than enamel of sound teeth. The enamel but not the dentin showed this suggestive fluorine difference. A more comprehensive survey by McClure [81] refutes this idea as applied to individual teeth. Analyses of dentin and enamel of several hundred sound and carious teeth showing no signs of fluorosis and representing nearly 100 individuals did not reveal differences in fluorine content. The enamel of sound and carious teeth contained 0.0102 ± 0.0004 per cent and 0.0098 ± 0.0003 per cent fluorine respectively, and dentin from sound teeth contained 0.0241 ± 0.0010 per cent fluorine and from carious teeth 0.0225 ± 0.0007 per cent fluorine. Teeth of different types (incisors, molars, etc.) did not differ in fluorine content. It was suggested that an increase of fluorine in the entire dentition may account for an over-all reduction in dental caries experience, but that the individual carious teeth in a dentition cannot be expected to show consistently less fluorine in the enamel (or dentin) than do the sound teeth.

There are analytic data to show that mottled teeth do contain more then normal quantities of fluorine,[82] and fluorine in rats' incisor teeth also correlates closely with characteristic striations caused by fluorine in the diet.[83]

Variations in fluorine content per se, of dental tissues, in many respects would seem destined to affect their physical structure and biochemical properties in vivo in conformity with the in vitro experimental evidence cited. The remarkable caries-preventive results obtained by topical application of fluoride [84] suggest a change in enamel surface in vivo, due possibly to acquisition of additional enamel fluorine, via surface adsorption. Analytic procedure thus far has failed, however, to demonstrate any increased fluorine in topically treated teeth.[85]

When the causation of caries is discussed the question of enamel solubility usually arises, and numerous investigators look to fluorine to so alter enamel and dentin solubility that acid decalcification by bacterial activity will be remarkably retarded. Here again the explanation may be overly simplified when the question is raised as to what quantity of fluorine in the teeth may be innocuous, and at the same time have a significant solubility-reducing effect.

Because fluorine is a powerful antienzymatic agent [86] it is suggested that fluorine in the teeth acts antienzymatically. There is little or no evidence in vivo to support this idea. The effect of fluorine on salivary amylase seems inconsequential,[87] and fluorine in saliva is not correlated with ingestion of fluorine.[88]

Dental Caries and Fluoride Medication.—In the present state of our knowledge the primary objective in fluoride preventive dentistry is to incorporate optimum quantities of fluorine into dental tissues by the most effective, efficient and lasting means which can be devised. Thus, experimental fluorination of communal drinking water is an attempt to duplicate mass population exposure to natural fluoride waters and thereby incorporate, possibly, an optimal quantity of fluorine in developing teeth. Results from these experiments will not be forthcoming for several years, although bacteriologic results of somewhat uncertain value have already been published.[89]

The beneficial as well as negative results attending the topical application of solutions of sodium fluoride and other fluorides are summarized in the table. While use of fluoride topically seems extremely promising, variations in the procedure, in the solutions used, etc., need to be studied.[84h]

McClure [91] estimated the milligram quantities of fluorine ingested via drinking waters containing 1.00 part per million of fluorine and suggested that the direct addition of about 1.0 mg. of fluorine as sodium fluoride daily to children's diets during the first eight years of life be considered as a caries-preventive measure. A dietary supplement of fluoride seems to have possibilities in caries control, but care should be exercised in the use of fluoride tablets. Their use is contraindicated where the drinking water contains 0.5 to 1.0 part per million or more of fluorine.

A great number of fluoride-containing tablets, for daily consumption in lieu of a fluoride drinking water, have appeared on the market. The value of these tablets has had no satisfactory demonstration, although several attempts in this direction have been made.[90] Most of these tablets contain calcium fluoride, or bone meal, and some provide vitamins, whereas there is no evidence that calcium, phosphorus or any of the vitamins enhance the fluorine caries-preventive effect.

The idea is erroneous that edible foods grown in areas where fluorine in the local water is above normal are high in fluorine content. Analytic data and fluoride fertilization studies,[92] and the fact that the majority of fluoride-bearing waters are not surface waters but come from deep wells,[93b] all contradict this erroneous idea. The tea leaf and certain sea foods [83] are exceptionally high in fluorine, but in general no raw foods can be implicated in the causation of fluorosis or in the "fluoride prevention" of dental caries.[93] Small increments of fluorine may be added to certain foods when they are cooked in fluoride waters.[94]

Any increase of fluorine in cows' milk due to extra fluorine in the cows' ration or drinking water is not to be expected, contrary to some such suggestions.[95] All the evidence reveals no elevation of fluorine in cows' milk due to additional fluorine in the ration or drinking water.[96] It should be emphasized, certain industrial exposures being disregarded, that water-borne fluorine is the major fluorine exposure associated with human population groups.

Effects of Fluoride Domestic Waters.—When it became evident that 0.5 to 1.0 part per million of fluorine in drinking water did not cause mottled enamel,[93a] direct fluorination of public water supplies as a caries-preventive measure was contemplated, although certain health hazards which might arise from this public practice were not to be ignored.

Clinical, epidemiologic and experimental evidence [96c] suggested a hazard of accumulative toxic fluorosis, particularly if a high percentage of the water-borne fluorine was retained in the body. Particularly incriminating are the reports from fluoride areas outside the United States which suggest toxic effects of excessive quantities of fluoride in drinking waters, combined with fluoride-contaminated food. A discussion of these reports has been presented elsewhere.[96c] In brief, the consensus is that the fluoride exposure of the afflicted (fluorosed) native people exceeds any level of fluoride encountered in the United States, or that other local factors and lack of adequate control data throw doubt on the results reported.[97]

Effects of Topical Applications of Fluorides

Number of Subjects	Age Range	Treatment: Solution	Treatment: Applications	Length of Study	Reduction in Caries Incidence, Percentage	Ref. No.
90	10-13	0.1% NaF	3	1st yr.	46	84b
39			0	2d yr.	30	84b
27	4½-6	0.05% KF	2	<1	50	84a
289	7-15	2.0% NaF	7-15	1st yr.	40	84c
(270)				2d yr.	47	84d
(242)				3d yr.	22	84e
472	7-15	2.0% NaF	2	1 yr.	9	84g
504	7-15	2.0% NaF	4	1 yr.	20	84g
482	7-15	2.0% NaF	6	1 yr.	21	84g
94	17.22	1.0% NaF*	1	1 yr.	0	..
241	6 12	2.0% NaF	1	1 yr.	5	84f
575	6-12	2.0% NaF	2	1 yr.	10	84f
161	6-12	2.0% NaF	3	1 yr.	21	84f
301	7-15	2.0% NaF	2	1 yr.	22	84h
247	7-15	2.0% NaF	4	1 yr.	41	84h
259	7-15	2.0% NaF	6	1 yr.	41	84h
272	7-15	0.064% PbF_2	2	1 yr.	6	84h
214	7-15	0.064% PbF_2	4	1 yr.	2	84h
262	7-15	0.064% PbF_2	6	1 yr.	1	84h

* Acidified to p_H 4.5.

In an attempt to assess the hazard of cumulative fluorosis from fluoride waters, an extensive survey of the fluorine concentration of urine specimens of high school boys and of young selectees of the armed forces of the United States was made by McClure and Kinser.[98] The data indicate that upward of 90 per cent of water-borne fluorine (in concentrations of 0.5 to 4.5 parts per million of fluorine) is eliminated in the daily urine of teen age boys and young men. The results of this fluorine excretion study are shown in figure 2.

Fluorine balance studies [99] furnish additional evidence that the adult human body eliminates the major portion of food-and-water-borne fluorine when the quantities ingested do not exceed 4.0 to 5.0 mg. of fluorine daily. According to these experiments,[100] body sweat may contain appreciable quantities of fluorine which may be related to the fluorine being ingested.[88b] McClure also found negative effects of water containing 0.5 to 4.5 parts per million of fluorine on age-height-weight-relations and bone fracture histories of high school boys and young inductees.[101] Although further studies of population groups exposed to fluoride waters are undoubtedly desirable, it seems unlikely that prolonged ingestion of fluorine via a domestic drinking water containing 1.0 to 1.5 parts per million of fluorine, or perhaps more, presents a public health hazard.

Fluorine Physiologic Effects and Requirement.—According to Lawrenz [102] the growing rat requires less than 27 micrograms of fluorine per kilogram, which agrees with previous evidence [103] that fluorine probably has no essential function in the rat. Our present knowledge also does not permit classification of fluorine as an essential element in human nutrition even as regards dental health. The presence of fluorine in dental tissues or in other body tissues is not evidence that fluorine is essential.

The metabolism of fluorine by the rat was the subject of extensive study by Lawrenz and Mitchell, and Lawrenz, Mitchell and Ruth. Their conclusions are based largely on balance studies and are summarized elsewhere.[102]

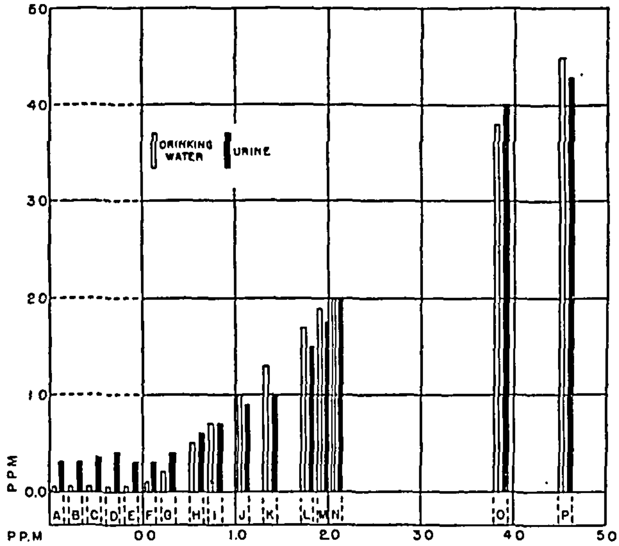

Fig. 2.—Relation of fluorine in drinking water to fluorine content of urine: *A*, New Hampshire; *B*, Chicago; *C*, Washington, D. C.; *D*, Waukegan, Ill.; *E*, Little Rock, Ark.; *F*, Quincy, Ill.; *G*, Indianapolis; *H*, Oklahoma City; *I*, Elgin, Ill.; *J*, Aurora, Ill.; *K*, Joliet, Ill.; *L*, Monmouth, Ill.; *M*, Galesburg, Ill.; *N*, Lubbock Glider Field; *O*, Lubbock, Texas, and *P*, Amarillo, Texas.

It is generally difficult to apply animal experimental fluoride results to fluorine exposure via domestic fluoride waters, because of the disproportionate quantities of fluorine involved, variations in species susceptibility and duration of exposure. Fluorine ingestion from domestic waters, even in areas of greatest water fluorine concentration,[62] would rarely exceed 8 to 10 mg. daily (i. e., less than 0.10 mg. per kilogram in the average adult), whereas animal experimental diets usually provide 5.0 mg. or more fluorine per kilogram.[104] In a recent study, growth, serum calcium and phosphorus, hemoglobin and blood coagulation time were not altered by feeding 5 mg. fluorine per kilogram, in some instances as long as one year, to 21 litters of dogs, involving 99 dogs.[104c] A reduction in blood hemoglobin in rats receiving 50 parts per million of fluorine as sodium fluoride in their drinking water was reported by Ginn and Volker [105] but was not confirmed in a subsequent study by McClure and Kornberg.[106]

The effects of fluorine on enzymic processes were recently reviewed thoroughly by Borei in connection with the report of his extensive studies on the inhibition by fluoride of oxidative processes in the cell.[86]

MANGANESE

Effects of Manganese Deficiency.—There is consistent evidence regarding manganese deficiency to the effect that (*a*) rats and mice react similarly, (*b*) there is a congenital debility in the young, (*c*) manganese is essential for growth in rats and mice, (*d*) there is testicular atrophy and sterility, (*e*) there is decrease in arginase activity, in vitro, (*f*) poor bone formation and bone changes in manganese-deficient rats and chicks are similar, (*g*) chicks and rats seem to show a similar need for manganese for normal functioning of the nervous system and (*h*) there are lowered hemoglobin concentration and interference with blood regeneration.[5] Lameness in pigs and more especially perosis in chicks are well established effects of manganese deficiency.[5b]

Disagreement was evident among the observations regarding the reproductive ability of female rats and the viability of their young,[5a] and Shils and McCollum [5a] suggested the possibility of three distinct stages of manganese deficiency in the female; i. e., (*a*) viable but defective young are born, (*b*) young are born but die shortly, and (*c*) a disturbed estrus cycle produces sterility.

Wachtel, Elvehjem and Hart [5c] in a paired controlled feeding experiment, as well as via ad libitum feeding, in rats produced additional evidence of (*a*) impaired growth, (*b*) less ash in bone, (*c*) a slight progressive anemia and (*d*) decreased hemoglobin regeneration. They found also a two to three fold increase in blood serum phosphatase activity and no significant change in bone phosphatases. Amdur, Norris and Heuser,[6] from a more recent, also controlled feeding experiment, reported a small but significant reduction in the alkaline phosphatase in bones of manganese-deficient rats. Both chicks [7] and rabbits [8] on manganese-deficient diets have shown reduced phosphatase activity. In this later rabbit study [8] food intake of control and deficient animals was equalized according to Mitchell's paired feeding technic and a detrimental effect of manganese deficiency on growth and on fresh weight, percentage of ash, total ash, density and length of humerus, was demonstrated.

After characteristic symptoms of manganese deficiency in the rabbit had been established, it became possible to determine to some extent the nutrient requirement of the element. Thus, Smith and Ellis and others [9] found that rabbits receiving but 0.3 mg. of manganese daily had normal bone, normal phosphatase activity of bone and normal arginase activity of the liver, but there was the suggestion that this much manganese was not sufficient for normal growth.

Physiologic Effects of Manganese.—Experiments related to several physiologic effects of manganese have appeared recently. The suggestion by Rudra,[10] that manganese played a role in the synthesis of ascorbic acid, was not confirmed.[11] Skinner and McHargue [12] presented evidence in support of a role of manganese in the synthesis of hemoglobin by showing, with rats, that manganese combined with iron and copper gave better results than iron and copper alone. Skinner and McHargue [12] suggested that manganese may supplement the action of copper. This is one of several conflicting reports on the relations of manganese and copper in hemoglobin synthesis.[13]

Manganese chloride administered subcutaneously in a single dose to white rats, in dosages greater than 180 mg. per kilogram, caused an enamel hypoplasia.[13b] An interesting observation reported by Amdur, Norris and Heuser [14] is that manganese tended to prevent the deposition of fat in the liver of rats. An interaction between choline and manganese was indicated by the fact that this lipotropic action of manganese was much greater when the choline content of the diet was lowest. Bone fat as well as liver fat was reduced by both manganese and choline.

The addition of 10 Gm. of manganese to the daily ration of dairy cows changed the manganese content of cows' milk from 21.9 to 64.5 parts per million.[15] This appears to be the only such report of an induced change in the manganese content of milk.

Radiomanganese Studies.—Several studies utilizing *radiomanganese have appeared. Two studies with* chicks [16] and rats [17] confirm evidence of practically complete elimination of manganese through the feces. In both manganese-deficient and control chicks [16] the major part of orally administered manganese was excreted. Labeled manganese given orally did not appear in bone, indicating that the manganese requirement of bone may be small.[16] Orally ingested manganese is poorly absorbed, even in the fasting animal.[17]

As has proved true in regard to many studies on unlabeled manganese in numerous animal species,[18] radiomanganese studies show the liver to be a most active organ in manganese metabolism.[19] From 50 to 75 per cent of the intestinal excretion of labeled manganese was estimated to come from the bile.[17] In the chick the role of manganese in hepatic function cannot be identified with arginase,[20] since chick liver does not contain arginase.

In experiments on the distribution of intravenously administered colloidal sols of manganese dioxide, containing about 1 per cent of 310 day manganese, to human beings and dogs, liver manganese in human beings also appeared to be high.[21] In the opinion of these workers [21] the pancreas as well as the liver may have special significance in manganese metabolism.

Manganese and Enzyme Action.— Manganese, although increased twentyfold in the diet of rats, had no effect on the activation of cocarboxylase in vivo, as measuured by the concentration of bisulfite-binding substances in the blood.[22]

Smith [23] studied the mechanism of manganese activation of l-leucine-aminoexopeptidase and expressed the belief that the action of this metal ion is due to the formation of a true metal-protein-enzyme compound.

The micro determination of manganese has been studied from three different angles, (*a*) microcolorimetric,[24] (*b*) microbiologic [25] and (*c*) a method utilizing the catalytic properties of manganese in an oxidation reaction.[26]

COBALT [26a]

Cobalt is required by ruminants but, strangely enough, not by other grazing animals (horses) or other species.[27] Attempts to demonstrate a cobalt deficiency in rabbits with a diet containing 0.0024 part per million of cobalt failed [28] and no deficiency symptoms result in rats,[29] or else the requirement is extremely small; i. e., less than 0.003 part per million daily.[29c] It has become increasingly evident that cobalt may not act directly on the ruminant host but within the rumen [30] where micro-organisms, concerned possibly with the synthesis of some of the B vitamins, may be affected.[28] In keeping with this idea Ray, Weir, Pope and Phillips [31] have obtained data which indicate a slightly lower concentration of nicotinic acid and possibly of the vitamin B_6 group in the blood of cobalt-deficient sheep.

Cobalt Metabolism Using Radioactive Cobalt.—When labeled cobalt in trace physiologic quantities is used, results are consistent in indicating, via measurements of body retention and tissue concentration, that the direct requirement of cobalt by ruminants must be small indeed, and, if required by other animals, the quantity is also small.[32]

Orally administered radiocobalt was only poorly absorbed by rats,[29] and a large portion appeared in the feces. Excretion of absorbed cobalt was chiefly by way of the urine. The bile is an important excretory path, and considerable cobalt was found in the liver, which suggested a role of cobalt in liver metabolism.

No significant amounts of injected cobalt reached rumen contents, and little rumen-ingested cobalt (via a rumen fistula) reached the blood.[32b] Orally administered labeled cobalt was 80 per cent eliminated in the feces, 0.5 per cent in urine.[32c] Relatively insignificant absorption was indicated by failure to find cobalt in blood, milk or saliva. Labeled cobalt injected intravenously in dogs did not appear in significant amounts in the pancreatic juice, but a total of 2.0 to 5.0 per cent was eliminated in forty-eight and seventy-two hours respectively in the bile.[32d]

Cobaltous acetate (500 mg. daily) in rations of dairy cows increased the cobalt in milk from 0.6 mg. up to 2.4 mg.[32e] Comar and Davis [33] compared the distribution of injected radioactive cobalt in swine, rabbits and young calves and found no evidence of species differences. Their findings "support the view that the major function of cobalt in the ruminant is a localized action in the rumen, but do not exclude the possibility of a hematopoietic function."

The foregoing evidence, which implicates the liver as an important depository for radiocobalt, is in agreement with the analytic data of Askew and Watson,[34] which showed that radioinactive cobalt given to deficient sheep accumulated in greatest amount in the liver, with only slight increases in spleen and kidney.

Cobalt Polycythemia.—An exhaustive review of dietary factors (vitamins, amino acids and minerals) which are concerned in erythropoiesis has appeared recently.[35] Among the minerals involved—iron, copper and cobalt—cobalt is unique; i. e., a deficiency of cobalt results in anemia, small amounts of cobalt produce erythropoiesis and larger amounts depress erythropoiesis. Although symptoms of endemic cobalt diseases are not specific, involvement of the erythropoiesis is indicated by the anemia which is generally observed in cobalt-deficient animals.

Cobalt polycythemia is easily produced in a number of animal species,[34] but the mechanism is still unknown. A number of reports on this subject have appeared recently.[36] Wintrobe [36g] studied the effect of cobalt on the anemia produced by inflammation induced by injection of turpentine and found it was largely overcome in the rat by cobalt. Cobalt polycythemia was developed in rats regardless of the addition of choline or methionine to the diet, but the addition of cystine was distinctly inhibitory.[36f]

[26a] Since completion of this review E. L. Rickes, N. C. Brink, F. R. Koniuszy, T. R. Wood and I. T. Folkers, (Science **108:** 134, 1948) have reported the presence of cobalt in the new B_{12} vitamin. Inasmuch as this vitamin is identified with remarkable effects in pernicious and other anemias, this discovery may explain some of the relations of cobalt to blood chemistry and may likewise extend the requirement of cobalt to other animals as well as ruminants.

A role of cobalt in cell metabolism is suggested by its activating effect on arginase.[37] Cobalt is also an effective inhibitor of growth and respiration of various micro-organisms, animal tissues and tumors. The action of histidine in overcoming this cobalt inhibitory effect is being studied.[38]

ZINC

A comprehensive review of zinc, emphasizing its toxicity, has been presented.[39] Prior to this survey[39] it was surmised that use of zinc in war production might have produced unsuspected features of zinc toxicity. No new toxic manifestations were noted, however, and the usual precautions in industrial production and use of zinc are still necessary.

Interest in a requirement of zinc is stimulated by evidence of the presence of zinc in purified carbonic anhydrase.[40] Use of radiozinc (Zn^{65}) has furnished new information on zinc metabolism.[41]

A need for zinc by the rat has been known for some time,[42] but it has been more difficult to determine in the mouse.[43] However; zinc starvation in mice did produce retarded growth, localized alopecia and affected hepatic and renal catalase.[44] A change in hepatic esterase, or concentration of riboflavin in liver and kidneys, changes in enamel and dentin and distinctive gross symptoms did not occur in this experiment.[44] Food consumption was ad libitum, however, and it would be of interest to confirm deficiency effects[44] under conditions of controlled feeding.

While a number of experiments suggest that the pancreas is involved in zinc metabolism,[45] evidence is contradictory regarding the relations of zinc and insulin.[46] In support of the view that the acinar portion of the pancreas may be associated with zinc metabolism, Montgomery, Sheline and Chaikoff[41a] found 11 per cent of administered radiozinc (Zn^{65}) excreted in the pancreatic juice of the dog in fourteen days. Maximum excretion in bile was only 0.4 per cent in eight days. Radiozinc was found in large amounts in juice obtained from an isolated loop of the duodenum. Sheline, Chaikoff, Jones and Montgomery[41b] injected minute quantities of zinc intravenously in dogs and mice and found that by far the largest fraction was eliminated in the feces. In dogs and mice the most active turnover of radiozinc was in liver, pancreas and pituitary gland. The least activity occurred in red blood cells, brain, skeletal muscles and skin.[41c] The extensive distribution of zinc in the animal body and its presence in important intestinal secretions gain support from these results.[41b,c]

Forty-two zinc balances on normal human patients reported by McCance and Widdowson[47] presented a condition also noted for injected radiozinc[41b,c]; i. e., practically all food-ingested zinc was eliminated in the feces. Normally 0.3 mg. zinc daily was excreted in the urine, and this quantity did not vary with the intake of zinc by mouth or by injection. Patients with albuminuria excreted about seven times the normal amount in urine, although this amount of zinc was not correlated with the degree of albuminuria. In contrast with this result,[47] Fairhall and Hoyt[48] previously found no relation of zinc to urinary albumin, but zinc was somewhat increased in the urine of uremia and tuberculosis. It would appear that the kidney normally has little or no zinc excretory function and does not vary its excretion in relation to dietary zinc or even when plasma zinc is increased after zinc injection. Traces of zinc in the urine as suggested by McCance and Widdowson[47] possibly represent an end product of some metabolic function of the kidney itself.

Zinc toxicity studies in rats provided Smith and Larson[49] with evidence of an antagonistic effect of copper and liver on reduced growth and hemoglobin levels associated with zinc toxicosis and called further attention to the inter-relation and interdependence of mineral elements in physiologic effects.

Although important relations to numerous enzyme systems[50] and certain animal experiments[51] suggest a human need for zinc, there is no direct information on this requirement. In a report by Stevenson[52] the possibility of a human zinc requirement was remotely suggested by evidence of low carbonic anhydrase activity in the blood of premature infants. Wide distribution in plants and animals, however, contraindicates a deficiency of zinc occurring in practical animal and human nutrition.

BORON

Boron occurs extensively in animal tissues,[53] but no evidence of a boron requirement in animal nutrition has been noted. Both oral ingestion of boron and absorption from boric acid, applied in the form of an ointment or a saturated solution, may cause serious and even fatal cumulative boron poisoning.[54]

Teresi, Hove, Elvehjem and Hart[55] prepared a ration lower in boron than that previously used.[56] Although the animals failed to eat the ration properly, it was indicated that a boron intake of 0.6 microgram per rat per day would probably satisfy normal growth.

In plant nutrition boron is poorly absorbed from mediums of low potassium content.[57] Assuming that a similar relation might exist in animal nutrition, Skinner and McHargue[58] studied the response of rats to boric acid and borax supplements in rations low in potassium. Due to extreme potassium deficiency all the animals grew little, but boron supplements accounted for longer survival periods, and after twenty-one days the rats on boron supplements contained 47 per cent more glycogen in their livers than the controls not given boron supplements. Stores of body fat were favored by "liberal supplementation" with boron compounds. The variable food consumption by rats on the two rations was not considered.

In a similar study, Follis[59] did not find heart and renal lesions in the rat due to potassium deficiency any different with and without boron supplements and, contrary to the results of Skinner and McHargue,[58] boron had no effect on growth or survival time.

An eleven to sixteen day boric acid regimen (3 Gm. daily) was studied in 4 normal adults.[60] This much boron was not particularly toxic to these adults, as indicated by no effects on basal metabolism or other effects being noted.

Excretion of borate by the dairy cow was studied in forty day balances in 2 Ayrshire cows.[61] Feeding 16 to 20 Gm. borax daily caused the milk concentration of boron to rise from 0.7 to 3.0 parts per million, which was not considered a public health hazard.[61] No diuretic effects, loss in weight or other ill effects occurred. A retention of boron in the body was not detectable, and boron excretion rapidly returned to normal at the end of experimental feeding.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following article. Howard A. Carter, *Secretary.*

ABSTRACT OF THE MINUTES OF THE MEETING OF THE COUNCIL ON PHYSICAL MEDICINE, DECEMBER 10 AND 11, 1948

The annual meeting of the Council on Physical Medicine was held Friday and Saturday, December 10 and 11, 1948, at the Headquarters of the American Medical Association. Those members present were: Drs. Morris A. Bowie, John S. Coulter, Anthony C. Cipollaro, William E. Grove, W. E. Garrey, Andrew C. Ivy, Frank H. Krusen, Frank R. Ober, George M. Piersol and Derrick Vail.

Dr. John S. Coulter was reelected chairman and Dr. Frank H. Krusen vice-chairman. Dr. Krusen served as acting chairman of the meeting.

Dr. W. E. Garrey presented a report of the Committee on Scientific Research of the Council, and the discussion which ensued pointed out the necessity of investigating the fundamental problems in the therapeutic use of radiation and atomic energy.

Dr. Howard A. Rusk of New York addressed the Council on the problems of residencies in rehabilitation. After much discussion it was apparent that the aims and purposes of physical medicine and of rehabilitation were very much alike and the Council voted to ask the Board of Trustees to consider favorably a change of the name of the Council on Physical Medicine to Council on Physical Medicine and Rehabilitation.

Considerable discussion was given to an article published by the Council entitled "Rebates," which dealt with the marketing of spectacles and hearing aids and with the ethical problems involved. The Council voted to withdraw the article and moved that a committee of three consisting of Dr. Ober, chairman, and Drs. Grove and Vail represent the Council at a meeting with the Judicial Council to discuss the problems relative to marketing hearing aids and spectacles by members of the medical profession.

The Committee on Field, Scope and Present Status reviewed the list of products considered by the Council. To this list of apparatus were added electrically heated bed coverings and trusses. The Council voted not to consider mattresses and auditory training units.

Progress reports on the activities of the various consultant groups were presented by the following: Dr. William E. Grove, Consultants on Audiometers and Hearing Aids; Dr. Derrick Vail, Consultants on Ophthalmic Devices; Dr. George Morris Piersol, Consultants on Clinical Thermometry, and Dr. Andrew C. Ivy, Consultants on Contraceptive Devices.

The Council voted that the Consultants on Roentgen Rays and Radium and Consultants on the Medical Aspects of Atomic Energy be henceforth combined and known as the Consultants on Roentgen Rays, Radium and Medical Aspects of Atomic Energy.

Reports were given by the members of the staff on artificial limbs, roentgen rays, radium and medical aspects of atomic energy, education, electrocardiographs, electroencephalographs, occupational therapy and respirators.

Reports were read on the present status of the Committee on American Health Resorts and the Committee on Radiation.

The Council voted to revise the "Glossary on Atomic Energy" and publish it.

Some discussion was devoted to the status of vaporizers for the distribution of glycol vapor recommended by the manufacturers for protection against cross infection. Although the scientific evidence available shows that germs may be destroyed in a confined space under laboratory controlled conditions, it was the opinion of the Council that the evidence did not justify the acceptance of generators of glycol vapors in practical applications, such as schools, offices, theaters and public buildings, because the results are not convincing.

Dr. Edith Quimby was appointed as a member of the Consultants on Roentgen Rays, Radium and Medical Aspects of Atomic Energy. Dr. H. Worley Kendell was appointed to fill the place vacated by the death of Dr. Frank Ewerhardt as a Consultant on Education. Dr. Howard Burchell was appointed to fill the place vacated by Dr. Barnes as a Consultant on Electrocardiographs.

Dr. Cipollaro moved that a member of the Council be appointed an ex officio member of each group of Consultants. The Chairman then appointed the following with the approval of the Council:

Consultants on Artificial Limbs—Dr. Ober, ex officio.
Consultants on Roentgen Rays, Radium and Medical Aspects of Atomic Energy—Dr. Cipollaro, ex officio.
Consultants on Audiometers and Hearing Aids—Dr. Grove, ex officio.
Consultants on Clinical Thermometry—Dr. Piersol, ex officio.
Consultants on Contraceptive Devices—Dr. Ivy, ex officio.
Consultants on Education—Dr. Coulter, ex officio.
Consultants on Electrocardiographs—Dr. Garrey, ex officio.
Consultants on Electroencephalography—Dr. Piersol, ex officio.
Consultants on Occupational Therapy—Dr. Bowie, ex officio.
Consultants on Ophthalmic Devices—Dr. Vail, ex officio.
Consultants on Respirators—Dr. Williams, ex officio.
Committee on American Health Resorts—Dr. Krusen, ex officio.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

Austin Smith, M.D., *Secretary.*

RABIES VACCINE (ULTRAVIOLET IRRADIATION KILLED).—Brains of rabbits paralyzed by infection with fixed rabies virus are harvested, emulsified and brought to a desired concentration by suspension in isotonic solution of sodium chloride; the suspension is filtered and a continuously flowing thin film is irradiated with ultraviolet light and dispensed in vials containing sufficient material for a daily dose.

Actions and Uses.—Rabies Vaccine (Ultraviolet Irradiation Killed) is employed for the prophylaxis of rabies.

Dosage.—Contents of one vial subcutaneously daily for 14 to 21 days. For severe exposure-bites on face or adjacent to central nervous system, 21 doses, two daily for the first three to seven days, then one dose daily.

Pitman-Moore Company, Indianapolis

Rabies Vaccine (Ultraviolet Irradiation Killed Virus): 1 cc. vials packaged in units of seven vials of a 10 per cent suspension. Preserved with sodium ethylmercurithiosalicylate 1 : 10,000.

E. R. Squibb & Sons, New York

Rabies Vaccine (Ultraviolet Irradiation Killed Virus): 2 cc. vials packaged in units of seven vials of a 5 per cent suspension. Preserved with sodium ethylmercurithiosalicylate 1 : 10,000.

PENICILLIN (See New and Nonofficial Remedies 1947, p. 144).

The following dosage forms have been accepted:

Bio-Ramo Drug Co., Baltimore 1, Md.

Crystalline Penicillin G Sodium: 200,000, 500,000 unit vials and 1,000,000 unit vials buffered with sodium citrate.

Premo Pharmaceutical Laboratories, Inc., New York

Crystalline Procaine Penicillin G in Oil: 300,000 units per cc., in sesame oil, 1 cc. disposable syringes and 10 cc. vials. Suspended with aluminum monostearate 2 per cent W/V.

Schenley Laboratories, Inc., New York

Crystalline Penicillin G Potassium: 100,000, 200,000, 500,000 units, 20 cc. vials; 1,000,000 units, 50 cc. vials.

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SATURDAY, MARCH 12, 1949

TRANSFUSIONS OF BLOOD FROM PREGNANT WOMEN FOR RHEUMATOID ARTHRITIS

The beneficial effect of thirty of thirty-four pregnancies in 20 patients with rheumatoid arthritis was reported in 1938 by Hench.[1] A "marked" to "complete" remission of the arthritis resulted. Seventeen of the 20 patients experienced notable relief of their rheumatoid arthritis each time they became pregnant. Articular relief began during the first trimester in about 90 per cent and in the second trimester in about 10 per cent of the patients who experienced amelioration. Relief was complete in about 60 per cent of effective pregnancies, almost complete in about 15 per cent and notable in the remaining 5 per cent. After parturition, the phenomenon of articular relief ended in about 50 to 55 per cent of the cases within one to seven weeks, and in between eight and twelve weeks in 10 per cent. Relief rarely lasted from four to twenty-four months. The factors of lactation, length of time in bed and approach of postpartum menses did not govern the duration of postpartum relief. Rheumatoid arthritis rarely begins during pregnancy. Hench concluded that pregnancy initiates a physiologic state which is decidedly beneficial (at least temporarily) to patients with rheumatoid arthritis (as well as to those who have certain other rheumatic disorders).

Barsi[2] reported the use of transfusions of blood from pregnant women in 6 cases of rheumatoid arthritis and noted that a "cure" occurred in 4 and that improvement occurred in 2 of the cases. The period of follow-up was from two to six months. More recently[3] he has briefly reported 28 cases of rheumatoid arthritis ("seemingly hopeless") in which transfusions of 300 cc. of blood from pregnant women were given "several times." "Sixty-four per cent recovered or improved," while in 6 cases a complete remission was said to have resulted and 4 were "cured" for the three to five years of follow-up study. Benefit was thought to be "independent of whether or not the transfusion caused a febrile reaction."

The claims of Barsi (Basch) have not been confirmed by the reports of five other groups of investigators.[4] These investigators describe the use of transfusions of blood from pregnant women given to 85 rheumatoid patients. Improvement was not noted in 56 per cent, slight to moderate improvement was observed in 28 per cent, and decided improvement occurred in 16 per cent. In no instance was a "cure" reported.

Results of a similar degree have been reported following the use of transfusions of blood from nonpregnant persons.[5] More recently (1947) the results of transfusions (two to thirteen, average five) of 300 cc. of normal blood every seven to ten days in 24 cases of rheumatoid arthritis (mostly severe) were reported by Appelqvist and Holsti.[6] This procedure was said to have produced "favorable but rarely dramatic" improvement. A "definite remission" occurred in only 1 patient, who also received gold therapy. These authors believe that the temporary improvement paralleled febrile reactions to the transfusions.

With the exception of the (unconfirmed) reports of Barsi (Basch), results of transfusions of blood from pregnant women given to patients with rheumatoid arthritis are not notably superior to those following the use of transfusions of blood from nonpregnant persons.

Repeated observations of many physicians have confirmed the potentially favorable effect of pregnancy on the course of rheumatoid arthritis. The phenomenon is a noteworthy one even though the mechanism by which it is accomplished is, as yet, unrecognized. The pregnant patient with rheumatoid arthritis circulates in excess of ten times the amount of blood used in transfusions obtained from pregnant women and only is able to sustain the resulting remission in the rheumatoid arthritis for an average of about one to seven weeks post partum. The expectation that significant, prompt and sometimes permanent alteration of the course of rheumatoid arthritis would result from transfusion of 300 cc. of blood from a pregnant woman (even when repeated) would seem remote. That such spectacular or even notably beneficial effects do result specifically from such a procedure remains to be established.

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[1] Hench, P. S.: Proc. Staff Meet., Mayo Clin. **13:** 161-167 (March 16) 1938.

[2] Barsi, I.: Orvosi hetil. **85:** 85-86 (Oct. 18) 1941.

[3] Barsi, I.: Brit. M. J. **2:** 252-253 (Aug. 16) 1947.

[4] Schnell, A.: Nord. med. **21:** 68-69 (Jan. 1) 1944. van der Spek, L. A. M., and Lindebloom, H. H.: Nederl. tijdschr. v. geneesk. **92:** 300 (Jan. 24) 1948. Enneking, J. A. M. J.: ibid, p 301. Bingen, E.: ibid., p. 302. Goslings, J., and van Swaay, M.: ibid., p. 303.

[5] Copeman, W. S. C.: Proc. Roy. Soc. Med. (Sect. Med.) **24:** 65-68 (Sept.) 1931. Holbrook, W. P., and Hill, D. F.: J. A. M. A. **107:** 34-38 (July 4) 1936.

[6] Appelqvist, O., and Holsti, O.: Schweiz. Med. Wchnschr. **77:** 977-980 (Sept. 13) 1947.

DEATHS IN CHILDREN FROM RHEUMATIC FEVER AND HEART DISEASE

A recent national statistical study of rheumatic fever and heart disease in children by Wolff[1] reveals that 14,575 deaths from all forms of heart disease occurred among those under 20 years of age in the years 1939 to 1941. A minimum of 12,000 deaths was considered to be caused by acute rheumatic fever and its aftereffects. Compared with six other leading causes of death, with increasing age rheumatic fever held an increasingly high place among the fatal diseases of the white population. In the nonwhite population, the greatest killer was tuberculosis, especially for girls entering the childbearing age. In spite of these facts, a comparison with mortality rates for two previous decades and the single years 1942, 1943 and 1944 demonstrated that rates for heart disease in these age groups for white children was showing a distinct decrease. The decrease was less definite in the nonwhite group. Nonwhite children showed a generally higher mortality for rheumatic fever than white children. Although the difference in mortality rates was not so great as in some of the other diseases, such as tuberculosis, syphilis and malaria, the consistent difference tended to show that rheumatic fever and heart diseases were unfavorably influenced by the adverse social and economic conditions of the nonwhite group. The significantly higher mortality rate among nonwhite girls as compared with white girls in the early childbearing period (15 to 19 years) was assumed to be due to a difference in fertility in the two groups.

Definite regional variations in mortality from acute rheumatic fever occurred among the geographic divisions of the United States. Rates were below average in the South, while in the Northeast, especially in the middle Atlantic division, they were considerably above average. Mortality rates in the Pacific division were comparable with rates in the South; however, in the Mountain division, rates were exceptionally high for children in all age groups. The average death rate in all states was 11.7 per 100,000. This varied from 5.3 in Vermont to 22.4 in Utah.

A prime motive of the study was to obtain practical and detailed information for determining where preventive efforts must be intensified. As acute rheumatic fever is not generally a reportable disease, any efficient campaign against rheumatic fever demands that it be made reportable.

The prospect for longevity in children with rheumatic fever was recently discussed by Wilson and Lubschez.[2] The records of 1,042 children with rheumatic fever were reviewed for a thirty year period (1916 to 1947). In this group the mean age at onset was 6.5 years; this analysis did not reveal any specific age or sex difference. The over-all death rate was 14.7 per thousand per year. An afflicted child had 4 out of 5 chances to survive fifteen years, 3 out of 4 to survive twenty years and 2 out of 3 to survive thirty years after the onset of the disease. A child had a 50 per cent chance to survive to the age of 40. This sample was considered representative of rheumatic children living in the New York city area.

The great present difficulty in rheumatic heart disease is the absence of good, simple, preventive measures or specific methods of treatment. A recent study by Weston[3] and the Wolff report[1] suggest that the problem is one for the entire community and that it requires a type of attack similar to that which has been carried out against tuberculosis. Improvement in socioeconomic factors such as improved housing, elimination of overcrowding, better nutrition and routine preschool and school examination to detect early cases should bring notable decrease both in incidence and severity of the disease.

POLIOMYELITIS PORTAL OF ENTRY

Doubt of the validity of the concept that the gastrointestinal tract is the usual portal of entry for poliomyelitis virus is expressed by Faber[1] and his associates of the Department of Pediatrics, Stanford University, as a result of inoculation experiments on cynomolgus monkeys. In their first series of tests, poliomyelitis virus (*Per* strain) was enclosed in crisco®-coated gelatin capsules and introduced by means of a curved metal cannula into the stomachs of 26 unanesthetized monkeys. None of these animals contracted poliomyelitis. Sabin and Ward[2] had previously found that the same virus administered by simple feeding, which involves simultaneous exposure of both the pharyngeal and gastrointestinal surfaces, induced infection in 40 per cent of their monkeys. Faber's negative results therefore suggest that as compared to the oropharyngeal surfaces the gastrointestinal mucosa is relatively impervious to the virus.

In a second series of tests, 18 cynomolgus monkeys were fed with repeated massive doses of the more highly virulent *Cam* strain by the same technic. The capsules were given before the morning meal on three successive days. In only 1 of the 18 monkeys thus fed did poliomyelitis develop. Of the 6 control monkeys fed the same virus, mixed with their regular diet, 3, or 50 per cent, succumbed to the disease.

In each of the capsule-fed animals, virus appeared in the stools during and immediately after the feeding periods. The virus disappeared thereafter from all stools except in the 1 case in which the infection developed. The inference was drawn that the intestinal epithelium is not a suitable host for the multiplication of this virus. No evidence of resistance to intracerebral inoculation was noted in subsequent tests of the seventeen uninfected capsule-fed animals.

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[1] Wolff, G.: Childhood Mortality from Rheumatic Fever and Heart Diseases, Publication 322, Federal Security Agency, Children's Bureau, 1948.

[2] Wilson, M. G., and Lubschez, R.: Longevity in Rheumatic Fever, J. A. M. A. **138**: 794 (Nov. 13) 1948.

[3] Weston, W., Jr.: Rheumatic Fever in Childhood, J. A. M. A. **137**: 675 (June 19) 1948.

[1] Faber, H. K.; Silverberg, R. J., and Dong, L.: J. Exper. Med. **78**: 499 and 519, 1943; **88**: 65, 1948.

[2] Sabin, A. B., and Ward, R.: J. Bact. **43**: 86, 1942.

These results are in accord with the belief that poliomyelitis enters primarily through superficial nerve endings. Histologic studies have shown[3] that nerve fibers do not penetrate further than the subepithelial level of the gastrointestinal tract. In certain parts of the pharynx and mouth the nerve fibers actually penetrate to the surface between the epithelial cells.[4] Conceivably the 1 capsule-fed monkey that contracted poliomyelitis did so as a result of secondary contamination with its own infected stools.

Current Comment

EXUDATIVE PLEURISY IN CHILDREN

From the Pediatric Clinic of Karolinska Institutet at Norrtull's Hospital, Stockholm, and the State Institute of Human Genetics and Race Biology, Uppsala, Nathhorst[1] investigated 595 children up to 16 years of age who had been treated at the children's hospitals in Göteborg and Stockholm for exudative pleurisy. As a control series, 575 healthy tuberculin-positive children of comparable age from the children's home in Göteborg were studied. The mean period of observation was 13.1 and 13.7 years respectively. During hospitalization for pleurisy, 585 of the 595 children were tuberculin positive. In 65 per cent, the onset was acute, and in 35 per cent insidious. The temperature and sedimentation rates were the same whether onset was acute or not. An infection of the upper respiratory tract did not seem to be of any specific importance in causing pleurisy in those who fell ill during hospitalization. Boys showed a higher incidence of pleurisy than girls. The risk for a boy up to 15 years of age in Göteborg is 9.3 per thousand and for a girl, 6.0 per thousand. The risk is greatest from March to May and least from August to October. The mortality of parents of pleuritic children from tuberculosis was 6.2 per cent in contrast to 3.3 per cent mortality for the general population. This is attributed to hereditary factors and infection in which the parents play a role. In only 53 of 538 cases was contagion established; in most, the source of exposure was unknown. Of 595 in the pleurisy series, 53 later died of tuberculosis, 28 of these from pulmonary tuberculosis. Compared with the urban population, there should have been only 10 deaths, whereas the risk of death from nontuberculous diseases was found to be the same in the two series. The risk of death from tuberculosis is greatest during the first year of observation in the pleurisy series—viz., 2.4 per cent (all of these dying from extrapulmonary tuberculosis)—then remaining fairly constant until about the tenth year of observation, and later decreasing slightly; from the sixteenth to the twentieth year of observation, the annual mean risk is 0.34 per cent and nearly twice that of the population. The risk of death is higher in the children who contract pleurisy at 10 to 16 years of age as compared with those who fall ill at ages 0 to 9 years. This is due to the fact that while the mortality from extrapulmonary tuberculosis is roughly the same in both groups, the mortality from pulmonary tuberculosis is higher in the older children. One would expect the morbidity to run parallel to the mortality, though the reports in this respect are not quite reliable. The risk of subsequently contracting tuberculosis during the first five years of observation is somewhat greater in those children whose pleurisy was preceded by a tuberculous manifestation such as erythema nodosum or hilar adenitis. The course of the onset or the size of the exudate does not seem to be of importance in the late prognosis. In 78 per cent, the roentgenogram taken during treatment for pleurisy showed a tuberculous primary pulmonary infection which was supraclavicularly located in 11 per cent. In 92 per cent of the cases, it was on the same side as the pleurisy. More than five years after the pleurisy in 57 per cent, foci of calcification in hilus or pulmonary parenchyma were present. In most cases there are adhesions between the pleural leaves. Out of 30 pneumothorax interventions on the same side as the pleurisy, the intervention was unsuccessful in 26 cases and a complete success in 2 cases only. Rheumatic fever was uncommon in both series; in the pleurisy series, only 0.7 per cent, and in the controls, 1.9 per cent. Such a study should be duplicated in other surroundings and under other conditions, though its major findings and application generally appear of value.

THE SUPPLY OF PHYSICIANS TO THE ARMED FORCES

Medical officers now on duty with the armed forces who will soon complete two years of active duty following A.S.T.P. or V-12 training are disturbed by the possibility that they may be retained in the services if the present campaign to stimulate voluntary entry on active duty of A.S.T.P. and V-12 graduates, with little or no active military duty, fails. If the needs of the armed forces cannot be met by voluntary medical officer recruitment, only two alternatives will remain: a compulsory draft of A.S.T.P. and V-12 doctors without military service or postponement of the release of medical officers now on active duty. The latter step, although legally justifiable according to the interpretation of the Judge Advocate Generals of the Army and Navy, would be a violation of a moral obligation to accept two years' service in return for government sponsored and supported training. Faced by these alternatives, a draft for those who have never served or the retention of those who have, the American Medical Association will no doubt urge the calling up of those who have not served.

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[3] Ramon y Cajàl, M.: Compt. rend. Soc. de biol. 5, pt. 2, 217. 1893. Oshima: Ztschr. f. d. ges. Anat. 90: 725, 1929.

[4] Schaeffer, J. P.: The Nose, Paranasal Sinuses, Nasolacrimal Passageways and Olfactory Organ in Man, Philadelphia, P. Blakiston's Son & Co., 1920, p. 285.

[1] Nathhorst, H.: The Prognosis of Exudative Pleurisy in Children, Acta tuberc. Scandinav. 1948, supp. 17, pp. 9-174.

ORGANIZATION SECTION

NOTICE TO PHYSICIAN-ARTISTS

If you plan to exhibit at the Atlantic City Exhibition (American Medical Association, June 6-10, 1949) now is the time to write for entry blanks, rules, shipping labels, etc. Haste is necessary because your entries must reach Atlantic City between April 15 and May 9.

For details, please write air mail to Francis H. Redewill, M.D., Secretary, American Physicians Art Association, Flood Building, San Francisco, Calif.

Medical Legislation

STATE LEGISLATION

Arizona

Bill Introduced.—H. 176 proposes to direct the governor to appoint a state **board of examiners for practical nurses** and proposes further that no practical nurse certified by this board shall engage in the following procedures unless under the direct instruction and supervision of a licensed physician: (1) administration of intravenous or intramuscular injections; (2) practice of oxygen, carbon dioxide or other gas therapy; (3) administration of anesthetics; (4) gavaging or lavaging; (5) catheterization or irrigation of the bladder; (6) taking of blood pressure, and (7) computation of dosage of medicine.

Arkansas

Bills Introduced.—H. 363 requires the **committee on admissions of the School of Medicine** of the University of Arkansas to allocate position vacancies in the school by congressional districts based on the population of each district. S. 230 proposes the repeal of the **basic science law.**

California

Bills Introduced.—A. 2171, to amend the motor vehicle act, proposes that the term "physician" as used therein shall include a licensed **doctor of chiropractic**, thus authorizing chiropractors to obtain the special insignia approved by the Department of Motor Vehicles indicating that the vehicle is owned by a licensed physician. A. 2172, to amend the labor code, proposes to authorize the **Industrial Accident Commission** to adopt and enforce fee schedules for persons authorized to render services to injured employees. A. 2257, to amend the health and safety code, proposes that no person shall be excluded from a hospital maintained by a hospital district because his attending physician and surgeon is a member of a **particular school of practice**, so long as such physician and surgeon is licensed under the provisions of Chapter 5, Division 2 of the Business and Professions Code. A. 2417, to amend the health and safety code relating to the state board of public health, proposes that one member of such board shall be a duly licensed and **practicing chiropractor.** A. 2690 proposes the creation of a **board of practical nurse examiners** and defines practical nursing as the performance of such nursing duties as are required in the physical care of a patient in carrying out of medical orders as prescribed by a licensed physician, requiring an understanding of nursing skills, but not requiring the professional nursing services as defined in the Nursing Practice Act. S. 1374, to amend the health and safety code, proposes that no person shall furnish any **hypnotic drug** unless it is administered by a physician, dentist, chiropodist or veterinarian. S. 1424, to amend the health and safety code, proposes the establishment of an advisory **chronic disease council** to conduct a program directed toward the reduction of deaths and disability from cancer and other chronic diseases.

New York

Bills Introduced.—A. 1198, to amend the law relating to **narcotic drugs**, proposes that the term "physician" shall include osteopaths. A. 1233 proposes an appropriation of $50,000 to defray the cost of studies and researches into the causes of **the common cold**, designed to prevent, control and cure such diseases. A. 1302, A. 1579 and S. 1258 propose the establishment of a **school of medicine** in the county of the Bronx. A. 1397 proposes the enactment of a comprehensive system of **health insurance.** A. 1399 and S. 1254 propose the creation of a commission to make a comprehensive study and survey of the causes and **effects of heart disease**, *rheumatic fever, rheumatic heart and kindred or* related diseases, of existing methods and facilities for the treatment of persons suffering therefrom, to formulate a long range program for continuing researches into and more effective methods and means for the prevention, treatment and cure of such cases. A. 1407, to amend the public health law, proposes to require physicians to notify immediately the health officer of the county, city, town or village wherein such person resides of every case of **infantile paralysis** under his care. A. 1644 proposes the creation of a board of **medical technologist** examiners and defines medical technology as the science, art or technic of performing microscopic examinations, chemical tests, chemical analyses, colorimetric comparison tests, the culture of pathogenic bacteria on or from the blood, blood serum, feces, urine, sputum, exudates, transudates, tissues, organ contents, or any by-products thereof, from the human body, living or deceased; when the tests shall be used either directly or indirectly as an aid in diagnosis or to aid in confirming a diagnosis, or to aid in the care or treatment of diseased, abnormal or injured organs of the human body. A. 1653 proposes to require a physician in attendance at birth to immediately cause the **footprints of the newborn child** and the thumbprints of the mother of such child to be taken and forthwith delivered to the mother. S. Res. 64 proposes that the state department of health be memorialized to do everyhing in its power to stimulate, encourage and provide aid to local hospitals and clinics to set up and maintain outpatient clinics qualified to treat children suffering from **cerebral palsy**, such hospitals to meet standards set up by the commissioner of health and to contract with such local institutions so qualified for research in the causes, diagnosis, treatment and cure of cerebral palsy. S. Res. 68 proposes that the state department of health be memorialized to select a group of licensed physicians and accredited physiotherapists, occupational therapists, speech therapists and public health nurses to be trained at the expense of the state as **specialists in cerebral palsy** at centers within or without the state, recognized and established as centers for the training of such personnel. S. 1180, to amend the education law, proposes to make it the duty of each medical inspector having jurisdiction over any public school in the state to examine each pupil attending such school for **symptoms of tuberculosis** at least once each school year. S. 1447 proposes to make it the duty of every householder before employing any person for domestic services to require from such person the production and surrender of a certificate of good health from a duly licensed and registered physician certifying that such person is **free from tuberculosis**, any venereal disease in its communicable or infectious stage or any other infectious, contagious or communicable disease. S. 1465, to amend the law relating to prenatal tests, proposes to require physicians to make serologic blood tests for the **Rh factor** of all pregnant women. S. 1511 proposes the enactment of a **disability compensation law.** S. 1712 proposes to prohibit the **sale of benzedrine** in penal institutions.

Oregon

Bills Introduced.—S. 213, to amend **the osteopathic act**, proposes that the practice of osteopathy and surgery by a duly appointed member of the resident staff or by an intern while actually serving as such in any legally incorporated osteopathic hospital shall not be governed by the act. The proposal would also authorize the board of osteopathic examiners to accept a certificate of successful examination issued by the National Board of Examiners of Osteopathic Physicians and Surgeons in lieu of its own examination. S. 233 proposes that no person shall furnish any dangerous drug except on the prescription of a physician, dentist, chiropodist or veterinarian. **"Dangerous drug"** is defined to include any hypnotic drug (acetylurea derivatives, barbituric acid or malonylurea derivatives, chloral, paraldehyde, phenylhydanton derivatives, sulfonmethane derivatives or any compounds or mixtures thereof), aminopyrine, amphetamine, cinchophen, diethylstilbestrol, ergot, oils of croton, sulfanilamide or substituted sulfanilamides or mixtures thereof, all glandular preparations except insulin and liver preparations, phenol. S. 239 proposes to provide for the promotion of medical science by the distribution and use of **unclaimed human bodies** for scientific purposes by the University of Oregon Medical School.

South Dakota

Bills Introduced.—H. 171 proposes to authorize the state nurses examining board to examine and grant licenses for the **practice of practical nursing.** A licensed practical nurse is defined as a person authorized under this act to perform for compensation such duties as are required in the physical care of a convalescent, a chronically ill, aged or infirm patient, and in carrying out such medical orders as are prescribed by a duly licensed physician, requiring a knowledge of simple nursing procedures, but not requiring the professional knowledge and skill requisite for a registered nurse, and serving in hospitals or elsewhere under the direction of a duly licensed physician or registered nurse. H. 199 proposes general amendments to **the medical practice act.** Among other things the practice is to be controlled by the state board of medical examiners rather than the state board of health and the proposal would require two doctors of osteopathy to be appointed to the five man board of medical examiners. Osteopaths and physicians are joined together all the way through the act and the board is authorized to grant a license to practice medicine, osteopathic medicine, surgery and obstetrics and all other branches without limitations to applicants who pass the examination. S. 167 proposes to authorize **cooperative associations** to be organized for the construction and operation of hospitals and medical clinics.

Tennessee

Bill Introduced.—H. 330 proposes the creation of a **cancer control division** in the Department of Public Health to promote a program for the prevention of cancer within the state.

Utah

Bills Introduced.—H. R. 4 proposes to memorialize the Congress of the United States to pass legislation introduced into the Congress which provides for prepaid medicine or **national health insurance.** H. 204, to amend the law relating to **premarital examinations**, proposes to authorize osteopaths and naturopaths to furnish the required physical certificates.

Bills Enacted.—S. Res. 4 was approved February 11. It memorializes the Congress of the United States to defeat any legislation introduced into Congress which provides for **socialized medicine or national compulsory health insurance** and which will result in a destruction of private initiative and the free enterprise system in this country and that Congress be urged to restrict its legislation to measures which will encourage private health insurance in cooperation with the private practice of medicine. S. 30 was approved February 17. It provides for the creation of a **State Board on Alcoholism** *to investigate the causes of alcoholics and alcoholism and to cooperate* with the Utah State Committee for Education on Alcoholism and Alcoholics Anonymous.

Washington Letter

(From a Special Correspondent)

Feb. 21, 1949.

Florida Representative Sponsors Education Subsidy Bills

Rep. George A. Smathers (Democrat, Florida) has become the sponsor of legislation whose ultimate goal is to increase the country's supply of physicians and dentists. In late January he introduced bills (H. R. 1779 and H. R. 2045) providing for federal loans to medical students and grants-in-aid for expansion of existing medical schools and construction of new ones. Early in February he filed two more bills (H. R. 2524 and H. R. 2525) which would do the same for dental education. All four measures are under consideration by the House Committee on Education and Labor.

A native of New Jersey who moved to Florida as a child, Representative Smathers is one of the youngest members of Congress (aged 35) and has taken a prominent role in support of health and medical legislation ever since he took his seat in Congress two years ago.

Dental Goods Conspiracy Charged by Federal Trade Commission

Conspiracy to eliminate competition in manufacture and distribution of dental goods is charged in a Federal Trade Commission complaint filed against 144 makers and suppliers, the American Dental Trade Association and its officers. According to the Commission, the respondents are located in all but twelve of the forty-eight states and are responsible for more than three fourths of the dental goods distributed in the United States. Among them are Wilmot Castle Company, American Sterilizer Company, Johnson & Johnson and General Electric X-ray Corporation. The complaint was made public and respondents are allowed twenty days to answer the charges. Dental goods involved are all articles used in the practice of dentistry, including chairs and office furniture as well as artificial teeth, instruments, alloys, drugs and compounds.

The companies and individuals cited are accused of having violated the Federal Trade Commission Act by conspiring to regulate competition. Effect of their allegedly collusive practices is "to control the market and enhance the prices paid by purchasers." Such practices, said the Federal Trade Commission complaint, "have a dangerous tendency to create monopoly."

Among the specific charges are that the respondents: classified dental goods and agreed on exact retail prices at which the various classifications should be sold both to dealers and the ultimate consumers; agreed on uniform rates of discount and uniform terms of credit; agreed on a division of territory among the various member dealers; established a plan of "policing the industry," and prevented nonmembers of the trade association from obtaining merchandise for resale.

Anticompulsion Editorial Printed in *Record*

An editorial that appeared in the Richmond (Ind.) *Palladium-Item*, recommending that this country not adopt the British system of sickness insurance, was printed in the *Congressional Record* for February 7 under sponsorship of Rep. Ralph Harvey (Republican, Indiana).

"Our taxpayers should know by now that nothing they get from the Government ever is free. Sooner or later they themselves foot the bill. And this will be true of national health insurance. The Government has no business in this field. Britain's muddling around should be evidence enough."

Coming Medical Meetings

Alabama, Medical Association of the State of, Montgomery, April 19-21. Dr. Douglas L. Cannon, 519 Dexter Ave., Montgomery 4, Secretary.

American Association for Thoracic Surgery, New Orleans, March 29-31. Dr. Brian Blades, George Washington University Hospital, Washington, D. C., Secretary.

American Association of Anatomists, Philadelphia, April 13-15. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

American Association of Industrial Physicians and Surgeons, Detroit, Book-Cadillac and Statler Hotels, April 5-9. Dr. Edward C. Holmblad, 28 E. Jackson Blvd., Chicago 4, Managing Director.

American Association of Pathologists and Bacteriologists, Boston, April 15-16. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Association on Mental Deficiency, New Orleans, Hotel Roosevelt, April 27-30. Dr. Neil A. Dayton, Box 51, Mansfield Depot, Conn., Secretary.

American Broncho-Esophagological Association, Chicago, Drake Hotel, April 18-19. Dr. Edwin N. Broyles, 1100 N. Charles St., Baltimore 1, Secretary.

American College of Allergists, Chicago, April 14-17. Dr. Fred W. Wittich, 423 LaSalle Medical Bldg., Minneapolis 2, Secretary.

American College of Physicians, New York, March 28-April 1. Dr. George Morris Piersol, 4200 Pine St., Philadelphia 4. Secretary General.

American Industrial Hygiene Association, Detroit, Book-Cadillac and Statler Hotels, April 5-7. Dr. Henry F. Smyth Jr., 4400 Fifth Ave., Pittsburgh 13, Executive Secretary.

American Laryngological, Rhinological and Otological Society, Chicago, Drake Hotel, April 18-20. Dr. C. Stewart Nash, 277 Alexander St., Rochester 7, New York, Secretary.

American Orthopsychiatric Association, Chicago, Stevens Hotel, April 4-6. Nina Ridenour, Ph.D., 25 W. 54th St., New York 19, Secretary.

American Pediatric Society, Atlantic City, May 5-6. Dr. Henry G. Poncher, 1819 W. Polk St., Chicago 12, Secretary.

American Physiological Society, Detroit, April 19-22. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Executive Secretary.

American Society for Clinical Investigation, Atlantic City, May 2. Dr. Paul B. Beeson, Grady Hospital, Atlanta 3, Georgia, Secretary.

American Society for Experimental Pathology, Detroit, April 18-22. Dr. Frieda S. Robscheit-Robbins, 260 Crittenden Blvd., Rochester, N. Y., Secretary.

American Society for Pharmacology and Experimental Therapeutics, Detroit, April 18-22. Dr. Harvey B. Haag, Medical College of Virginia, Richmond 19, Secretary.

American Society for Research in Psychomatic Problems, Atlantic City, Chalfonte-Haddon Hall, April 30-May 1. Dr. Sydney G. Margolis, 714 Madison Ave., New York 24, Executive Secretary.

American Society of Biological Chemists, Detroit, April 17-22. Dr. Otto A. Bessey, 1853 W. Polk St., Chicago 12, Secretary.

American Surgical Association, St. Louis, April 20-22. Dr. Nathan Womack, University of Iowa, Iowa City, Secretary.

Arkansas Medical Society, Little Rock, April 14-16. Dr. William R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Association of American Physicians, Atlantic City, May 3-4. Dr. Henry M. Thomas Jr., 1201 N. Calvert St., Baltimore 2, Secretary.

Connecticut State Medical Society, New Britain, State Teachers' College, May 3-5. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.

Dallas Southern Clinical Society, Dallas, Texas, March 14-17. Miss Thelma Webb, 1133 Medical Arts Bldg., Dallas, Executive Secretary.

Federation of American Societies for Experimental Biology, Detroit, April 18-22. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Secretary.

Iowa State Medical Society, Des Moines, April 18-21. Dr. Allan B. Phillips, 406 Sixth Ave., Des Moines 9, Secretary.

Louisiana State Medical Society, New Orleans, May 5-7. Dr. P. T. T. Talbot, 1430 Tulane Avenue, New Orleans 13, Secretary.

Maryland, Medical and Chirurgical Faculty of the State of, Baltimore, April 26-27. Dr. George H. Yeager, 1211 Cathedral St., Baltimore 1, Secretary.

Michigan Postgraduate Clinical Institute, Detroit, Book-Cadillac Hotel, March 23-25. Dr. L. Fernald Foster, 2020 Olds Tower, Lansing 8, Mich., Secretary.

Missouri State Medical Association, Kansas City, March 27-30. Mr. T. R. O'Brien, 634 N. Grand Blvd., St. Louis 3, Secretary.

National Tuberculosis Association, Detroit, May 2-6. Dr. H. Stuart Willis, 1790 Broadway, New York 19, Secretary.

Nebraska State Medical Association, Omaha, Hotel Paxton, May 2-5. Dr. R. B. Adams, 416 Federal Securities Building, Lincoln 8, Nebraska, Secretary.

New Jersey, Medical Society of, Atlantic City, Hotel Ambassador, April 25-28. Dr. Earl L. Wood, 315 W. State St., Trenton 8, Secretary.

New Mexico Medical Society, Roswell, May 5-7. Dr. H. L. January, 221 W. Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, Buffalo, Hotel Statler, May 2-6. Dr. Walter P. Anderton, 292 Madison Ave., New York 17, Secretary.

Ohio State Medical Association, Columbus, April 19-21. Mr. Charles S. Nelson, 19 E. State St., Columbus 15, Executive Secretary.

Southern Branch, American Public Health Association, Dallas, Texas, Baker Hotel, April 14-16. Dr. George A. Denison, 600 S. Twentieth St., Birmingham, Ala., Secretary.

Southwest Allergy Forum, El Paso, Texas, Hotel Paso del Norte, April 4-5. Dr. O. E. Egbert, First National Bank Bldg., El Paso, Secretary.

Tennessee State Medical Association, Chattanooga, April 12-14. Dr. W. M. Hardy, 706 Church Street, Nashville 3, Secretary.

Texas, State Medical Association of, San Antonio, May 2-5. Dr. Harold Williams, 700 Guadalupe St., Austin, Secretary.

GOVERNMENT SERVICES

SECRETARY OF DEFENSE

COMMITTEE TO ADVISE ARMED FORCES

Secretary of Defense Forrestal has announced the appointment of a committee which will advise the armed forces on medical policies and programs. The members of this committee, which will succeed the Hawley Committee, are Charles P. Cooper, president, Board of Trustees, Presbyterian Hospital, New York, chairman; Drs. Maurice C. Pincoffs, Baltimore; Edward D. Churchill, Boston; Richard L. Meiling, Columbus, Ohio; Howard A. Rusk, New York; Paul Titus, Pittsburgh; Paul Hawley, Chicago; Michael DeBakey, Houston, Texas; Raymond B. Allen, Seattle, Wash.; Walter H. Schere, D.D.S., Houston, Texas, and the three surgeons general.

ARMY

WOMEN'S MEDICAL SPECIALIST CORPS

Training courses to qualify applicants for appointment in the Women's Medical Specialist Corps of the Regular Army will be offered beginning in September 1949. The training program will include a dietetic internship, a physical therapy training course and an occupational therapy clinical affiliation. The dietetic internship will consist of both didactic instruction and practical application. The physical therapy training course will include two phases of about six months each. The first phase, conducted at the Brooke Army Medical Center, Fort Sam Houston, Texas, will be primarily didactic instruction. During the second phase, students will be assigned to selected Army general hospitals for further instruction and supervised clinical practice. The occupational therapy clinical program will be conducted in Army general hospitals where well organized occupational therapy programs are in progress. Prior to beginning this training, students will be required to complete a two months' basic training course at the Brooke Army Medical Center.

Applicants must meet the following qualifications: (1) dietetic internship—a bachelor of science degree from a college or university approved by the Surgeon General, with a major in either foods and nutrition or in institutional management; (2) physical therapy training course—a baccalaureate degree from a college or university approved by the Surgeon General, with major emphasis on physical education or the biologic sciences, or (3) occupational therapy clinical affiliation—a baccalaureate degree and the first year of a two-year course in occupational therapy, or completion of four years (120 semester hours) leading to such a degree in a college or university approved by the Surgeon General.

Participation in this program is available only to unmarried women who have no dependents under 18 years of age. An applicant must be a citizen of the United States, and must have passed her twenty-first birthday but not have passed her twenty-sixth birthday on the date of appointment. Applicants must meet the physical requirements as prescribed in Army Regulations for appointment in the Women's Medical Specialist Corps. Persons selected must agree to apply for commissions as second lieutenants in the officer's reserve corps and volunteer for two years of extended active duty, which includes the entire period of training.

Persons appointed in the Women's Medical Specialist Corps Section of the officers' reserve corps will be called to extended active duty in the grade of second lieutenant and will be paid $180 a month in addition to 70 cents a day toward subsistence. They will be provided with government quarters and will have equal status with all Army officers of comparable grade.

Application blanks may be obtained from the Surgeon General, U. S. Army, Washington 25, D. C., Attention, Women's Medical Specialist Corps.

PUBLIC HEALTH SERVICE

RESEARCH IN MILK AND FOOD SANITATION

Dr. W. Palmer Dearing, Deputy Surgeon General, welcomed two hundred researchers from all parts of the country to a symposium, January 26-27, on research in milk and food sanitation, sponsored by the National Institutes of Health. Dr. Dearing said, "We understand the epidemiology of typhoid, dysenteries, salmonellosis and other diseases for which milk and food are known to be the vehicles of infection. No such knowledge exists about gastroenteritis of unknown etiology. The role of sanitation in diseases not obviously related to the gastrointestinal tract has scarcely been explored. Recently work on nutrition and vital resistance in mice may have important implications in food sanitation. In a different area, we do not yet know much about the administration of milk control, or its economic implications. It is evident there are major, untouched problems in this field." At the four sessions of the symposium, the presiding officers were: Mr. V. M. Ehlers, director, Bureau of Sanitary Engineering, Texas State Department of Health; Dr. W. L. Mallmann, professor of bacteriology and public health, Michigan State College; Major Raymond J. Karpen, sanitary engineer, Environmental Sanitation Branch, Office of the Surgeon General, Department of the Army, and Dr. F. C. Bishopp, assistant chief in charge of research, Bureau of Entomology and Plant Quarantine, Department of Agriculture.

MEETING ON VENEREAL DISEASE RESEARCH

A joint meeting on venereal disease research will be held in Washington, D. C., April 7-8, and the program on the first day will be a symposium on recent advances in the study of venereal diseases under the auspices of the Syphilis Study Section of the National Institutes of Health. On the second day will be held the annual scientific session of the American Venereal Disease Association. Both day meetings will be in Room 1517, Federal Security Building North, Washington, D. C. All persons interested are invited to attend, and copies of the program will be sent on request. Inquiries should be addressed to Dr. William L. Fleming, Secretary, American Venereal Disease Association, 750 Harrison Avenue, Boston, or to the Executive Secretary, Syphilis Study Section, National Institutes of Health, Bethesda, Md.

EXAMINATION FOR THE REGULAR CORPS

A competitive examination for appointment of medical officers in the Regular Corps of the U. S. Public Health Service will be held May 3-5. The appointments are in the grades of assistant surgeon (first lieut.), and senior assistant surgeon (captain). Examinations will be held at Baltimore, New Orleans, San Francisco, Seattle, Chicago, Cleveland, Detroit, Boston, Memphis, Los Angeles, Denver, Atlanta, Ga., Kansas City, Mo., Lexington, Ky., Kirkwood, Mo., and Staten Island, N. Y. Applicants must be citizens of the United States, at least 21 years of age and graduates of a recognized medical school. Appointment for the grade of senior assistant surgeon requires also at least ten years of educational training and professional experience subsequent to high school. The entrance pay is $5,011 per annum and $5,689 respectively for officers with dependents. Promotions are made at regular intervals up to the grade of senior surgeon. Retirement pay after thirty years of service is $4,950 per year. Application forms can be had from the Surgeon General, United States Public Health Service, Washington 25, D. C. Applications must be completed by April 4.

COMMITTEE ON HABIT-FORMING DRUGS

Dr. Nathan B. Eddy has been elected chairman of the Expert Committee on Habit-Forming Drugs of the World Health Organization. The committee is now in session at Geneva, Switzerland, considering whether new synthetic analgesics can be defined as addicting drugs and are therefore subject to international control. Dr. Eddy, a native of New York, is a graduate of Cornell University Medical College, a former practitioner of medicine, instructor in physiology at McGill University, assistant professor in physiology and pharmacology at the University of Alberta and research professor of pharmacology at the University of Michigan. The other members of the committee are Dr. J. R. Nichols, British Government chemist of London, England; Dr. P. O. Wolff of Buenos Aires, Argentina; Professor J. Bouquet of Tunis, and Professor H. P. Chu of the National College of Medicine at Shanghai, China.

SOUTH AMERICAN ASSIGNMENTS

Nicholas G. Barbella, biochemist, and John V. Yates, laboratory assistant, have gone to Lima, Peru, for research on the cocoa leaf chewing habit among the natives of that country. The Peruvian Government last year proposed a Commission of Inquiry by the United Nations info the cocoa leaf chewing habit. The project which is now under way is a cooperative project between the United States Public Health Service and the Institute of Andean Biology, which is connected with the medical faculty of Lima, Peru.

F. Carlyle Roverts, sanitary engineer, a commissioned officer of the Pan-American Sanitary Bureau, is on duty in South America, detailed to the Bahia State Health Department of Brazil to study water supply and sewage disposal facilities and other sanitation problems in the interior of the State of Bahia.

ESTIMATE OF NUMBER OF HOSPITAL BEDS NEEDED

The plans for hospital construction submitted by the various states and territories (exclusive of Nevada which has not yet submitted a plan) show that there are now a total of 1,024,840 hospital beds, of which 879,527 are considered acceptable by the state and territorial agencies. The others are unacceptable, the U. S. Public Health Service announces, because of fire hazards, unsuitable design or other failure to meet the standards set up by the agencies administering the program. The states and territories estimate, on the basis of standards set forth in the Federal Hospital Survey and Construction Act, that an additional 897,146 hospital beds are needed. The nation has, according to the state plans, 397,168 acceptable beds for general hospital care and needs an additional 255,443 beds. The nation has a total of 381,627 acceptable beds in mental hospitals and requires, it is estimated, 310,523 additional beds in this category. Beds in institutions for mental deficiencies and epilepsy are not considered in the state plans. The nation has 72,215 acceptable beds for tuberculosis hospital care and needs 82,886 more. The so-called chronic hospitals have 28,517 beds and need, it is said, 248,294 additional beds to give adequate care of these patients.

AID TO SCHOOLS FOR UNDERGRADUATE TRAINING IN PSYCHIATRY

At a recent meeting of National Advisory Mental Health Council in Washington, D. C., the award of grants totaling nearly $1,500,000 to forty-two medical schools for expanding or developing undergraduate training in psychiatry was recommended by the Council. In selecting the schools to receive grants, the Council gave favorable weighting to those schools which were not receiving other mental hygiene grants from the government, could not obtain needed funds from other sources, had not been able to establish a strong program but had potentialities for doing so, had a receptive setting in terms of facilities, faculty interest, and appreciation of the importance of psychiatric factors in medical practice. The first funds will be made available for the 1949-1950 school year, and subsequent payments will be in equal allotments for the two following school years. The medical schools which will receive government grants through the U. S. Public Health Service for undergraduate training in psychiatry are:

Medical School	Total Grant for Three Years
Medical College of Alabama	$27,500
Albany Medical College (Albany, N. Y.)	37,500
University of Arkansas	37,500
Baylor University (Houston)	34,976
Dartmouth Medical School	4,500
Emory University (Atlanta)	37,500
George Washington University	37,500
Georgetown University	37,500
Hahnemann Medical College (Philadelphia)	37,500
Howard University	29,697
State University of Iowa	37,179
Jefferson Medical College (Philadelphia)	37,500
Johns Hopkins University	34,992
University of Kansas	37,500
Long Island College of Medicine	37,500
Louisiana State University	37,420
Loyola University (Chicago)	36,180
University of Maryland	30,000
Meharry Medical College (Nashville)	37,463
University of Michigan	32,100
University of Minnesota	37,500
University of Nebraska	37,260
New York University	37,500
Ohio State University	37,500
University of Oklahoma	37,500
Pennsylvania Woman's Medical College (Philadelphia)	37,302
University of Rochester	37,404
Southwestern University (Dallas)	37,500
Syracuse University	37,044
Temple University	37,300
University of Tennessee	37,500
University of Texas	34,000
Tulane University of Louisiana	37,500
University of Utah	37,500
University of Vermont	37,152
Virginia Medical College	36,944
Bowman Gray School of Medicine of Wake Forest College (Winston-Salem, N. C.)	37,500
Washington University (St. Louis)	37,500
University of Washington (Seattle)	37,500
Wayne University (Detroit)	37,500
Western Reserve University (Cleveland)	37,500
Yale University	36,720
Total	$1,498,333

MISSION TO LIBERIA

The Mission to Liberia was established in 1944, and when the first public health service personnel arrived in Monrovia in November of that year, very few facilities were available with which to begin operations. Of the improvement brought about since that time, one indication is the increase in money appropriated for public health and medical care by the Liberian Government, from $72,000 in 1944 to $300,000 in 1948. Dr. Hildrus A. Poindexter, who was recently appointed Director of the Liberian Mission, left for Monrovia January 10 to replace Dr. John B. West, resigned, who before leaving that country was awarded the decoration of Vice-Commander of the Order of African Redemption by the Liberian Government in recognition of his work with the Mission. Other personnel who have returned from the Mission for reassignment by the Public Health Service are Thomas Johnson, medical entomologist; Alma Jackson Baynard, health educator, and Lillian Holly and Clara Beverly, nursing arts instructors.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ARIZONA

Cerebral Palsy Unit in Phoenix.—A cerebral palsy nursery school has been opened as a project of the Junior League of Phoenix at the suggestion of the National Society for Crippled Children and Adults. The policies of the new school are supervised by a board made up of the Maricopa County Crippled Children's Society and the Cerebral Palsy Parents Council. The county crippled children's society donated equipment and offered professional consultation. In addition to directed play the nursery offers therapeutic care and treatment.

CALIFORNIA

Dr. Mushin Visiting Professor.—Dr. William Mushin will be visiting professor of anesthesiology at Stanford University School of Medicine, Stanford-San Francisco, March 15 to May 15. Dr. Mushin in professor of anesthesiology at both the University of Wales and the Royal College of Surgeons of England.

Langley Porter Clinic.—The University of California Langley Porter Clinic has established a department of neurosurgery and a comprehensive research program on the problem of brain surgery in psychiatric treatment. The clinic's surgical service, which does not include the usual neurosurgery, will be devoted to treatment of cases involving peculiar mental conditions.

FLORIDA

Seminar on Diabetes.—A seminar on diabetes will be held at the George Washington Hotel, Jacksonville, March 28-29 in cooperation with the department of medicine of the Graduate School of the University of Florida, the Clinical Society of the Duval County Diabetes Association and the U. S. Public Health Service. The speakers will be Drs. Charles H. Best, Toronto, Canada; Elliott P. Joslin, Boston; Joseph H. Barach, Pittsburgh, and John A. Reed, Washington, D. C. There will be no registration fee. Hotel reservations may be made through Dr. Malcolm J. Ford, Diabetes Demonstration Unit, Box 210, Jacksonville.

ILLINOIS

Chickenpox.—The state department of public health states that 400 to 500 cases of chickenpox were reported weekly during January. The total number of cases reported for 1948 was 15,769, the largest number since 1944, when 16,498 cases were reported. Three deaths from chickenpox were recorded in Illinois in 1947.

Chicago

Lecture on Nutrition.—Dr. Frederick J. Stare, Harvard Medical School, Boston, will speak on "Calories in Parenteral Nutrition" at a meeting of the Chicago Nutrition Association March 25 in the English Room II, Marshall Field & Company, at 12 noon. Dr. Stare has been editor of *Nutrition Reviews* since its first issue in 1942.

The McArthur Lecture.—The twenty-fifth Lewis Linn McArthur Lecture of the Frank Billings Foundation of the Institute of Medicine of Chicago will be delivered at the Palmer House March 25 at 8 p. m. by Dr. Warren H. Cole, professor and chairman of the department of surgery, University of Illinois College of Medicine, on "Current Trends in Diseases of the Gallbladder and Bile Ducts."

Society News.—The North Side Branch of the Chicago Medical Society April 7 at the Drake Hotel will hear Drs. Charles B. Huggins, Chicago, speak on "Testicular Tumors" and John D. Camp, University of Minnesota, Minneapolis, on "Significance of Roentgenograms of the Skull in the Diagnosis of Systemic Disease."

Council of Social Agencies Changes Name.—The Chicago Council of Social Agencies has changed its name to "Welfare Council of Metropolitan Chicago" in order to match the name of the organization to the scope of its work. The council now includes more than two hundred health and welfare agencies in the Chicago area in its membership. Mr. Meyer Kestnbaum, president of Hart, Schaffner & Marx, was re-elected president for his fifth annual term. Mrs. William M. Collins Jr. was renamed secretary and Mr. I. S. Loewenberg, treasurer.

INDIANA

State Laboratory Cooperates in Influenza Study.—The laboratory of the Indiana State Board of Health has been named as one of the laboratories cooperating with the U. S. Public Health Service in a plan designed to study possible future epidemics of influenza. The objectives are (1) to identify new strains of influenza virus as they appear and (2) to evaluate their usefulness for incorporation in influenza vaccine. In the event of an outbreak of respiratory disease suspected of being influenzal in nature, regional laboratories throughout the United States will conduct serologic tests to determine the nature of the disease.

Medical School Enrolment Increased.—The State Budget Committee has made a special grant of $116,500 to the Indiana University School of Medicine, Bloomington-Indianapolis, for the specific purpose of expanding its student enrolment. The action is the result of the study of the problem of alleviating the shortage of doctors in Indiana. Careful analysis of its teaching facilities by the university has determined expansion to be feasible. Recommendations were made concerning the cost of remodeling necessary under the proposed enlargement along with employment of a teaching staff and purchase of equipment and supplies. Twenty-one additional students have been admitted to the first year class now totaling 150. A first year class of a similar size will be enrolled during the next year.

MARYLAND

Five Year Study in Obstetrics.—The department of obstetrics of Johns Hopkins Hospital has begun a five year research study to evaluate methods used to control obstetric pain. This study was inaugurated under the codirection of Drs. Louis M. Hellman and Robert A. Hingson, associate professors of obstetrics in the service of Professor Nicholson J. Eastman. Grants to underwrite the cost of this program were given by the Abbott Laboratories, Ciba Pharmaceutical Products, Eli Lilly & Company, Parke, Davis & Company and E. R. Squibb & Sons. Subsequently, collateral grants from the Becton, Dickinson Foundation, Sharp & Dohme, Inc., Winthrop-Stearns Pharmaceutical Company and Merck & Company have been made to augment this program. Johns Hopkins University Medical School and Hospital, United States Public Health Service, the National Institutes of Health and the Sinai Hospital have provided clinical and laboratory facilities for this program, which will include an analysis of results in 20,000 consecutive deliveries during the five year period. Among the studies undertaken in the initial phases of the program are:

1. Effect of air conditioning and humidification on the well-being of mothers and babies.

2. Effect of the systemic analgesics, the general anesthetics and local nerve blocks on the uterine contraction pattern in labor.

3. Arterial and venous oxygen studies on mother and baby with and without influence of pain-relieving drugs.

4. Incidence of maternal and fetal salvage and morbidity in major groups of currently used anesthetic agents.

5. Development and standardization of several new technics in anesthesiology in obstetrics involving new drugs and drug combinations. The program was developed to carry on this study without postgraduate teaching; however, the requests from so many physicians for organized graduate training programs in these technics has required the establishment of a repeating two month course, limited to ten students each.

MICHIGAN

Clinical Institute in Detroit.—The Michigan Postgraduate Clinical Institute of the Michigan State Medical Society will be held at the Book-Cadillac Hotel, Detroit, March 23-25. Among the out-of-state speakers will be:

Howard K. Gray, Rochester, Minn., Surgery of the Biliary Tract.
Harry S. N. Greene, New Haven, Conn., The R. S. Sykes Lecture: Biological Differentiation of Benign and Malignant Tumors.
Chauncey C. Maher, Chicago, Cardiac Care in Thyrotoxicosis.
Leon Schiff, Cincinnati, Differential Diagnosis of Jaundice.
Frank H. Krusen, Rochester, Minn., Practical Uses of Physical Medicine.
L. Howard Schriver, Cincinnati, Political, Social and Economic Problems Facing the Medical Profession.
Frank W. Konzelmann, Atlantic City, N. J., Position of the Laboratory in the Diagnosis and Control of Disease.
Lee Forrest Hill, Des Moines, Ia., Role of the General Practitioner in Child Health Care.
D. W. Gordon Murray, Toronto, Canada, Surgical Repair of Congenital Septal Defects in the Heart and a Surgical Approach to Treatment of Coronary Thrombosis.
Frank L. Meleney, New York, Surgical Treatment of Metastatic Tumors of the Lung.
Howard F. Root, Boston, Medical and Surgical Problems of Diabetes.
F. Bayard Carter, Durham, N. C., Modern Practice of Gynecology.
Francis C. Grant, Philadelphia, Surgical Methods for the Relief of Intractable Pain.

NEW YORK

Virus Laboratory.—A virus laboratory is to be set up by the University of Buffalo at Buffalo General Hospital. To help with its organization Dr. Gilbert Dalldorf, Albany, director of the Division of Laboratories and Research in the state department of health, has accepted appointment as visiting professor of pathology at the medical school.

Postgraduate Instruction.—The Medical Society of the State of New York with the cooperation of the New York State Department of Health has arranged a postgraduate lecture for the Geneva Academy of Medicine at the Belhurst Restaurant in Geneva March 17 at 8:30 p.m. Dr. R. Townley Paton, New York, will speak on "Indications, Contraindications and Technique of Penetrating and Nonpenetrating Corneal Grafts." A series of lectures has been arranged for the Sullivan County Medical Society to be given on Wednesdays at 8:30 p.m.:

March 16, Lenape Hotel, Liberty: Hugh Chaplin, New York, Care and Feeding of Premature Babies.
March 23, Monticello Hospital, Monticello: Gaylord W. Graves, New York, Problems of Practice in the First Year of Life.
March 30, Lenape Hotel, Liberty: Harry Bakwin, New York, Common Behavior Disorders of Children.
April 6, Monticello Hospital, Monticello: Elaine P. Ralli, New York, Diabetes in Childhood.
April 20, Lenape Hotel, Liberty: Rosa Lee Nemir, New York, Pneumonias of Childhood.
April 27, Monticello Hospital, Monticello: Reuel A. Benson, New York, Vaginal Infections in Infants and Childhood.
May 11, Sullivan County Golf and Country Club, Liberty: Charles M. Allaben, Binghamton, Preventive Orthopedics: Common Defects with Good Prognosis Under Medical Care.

New York City

Anniversary Program on Radiation Therapy.—To mark the twenty-fifth year of the establishment of the Radiation Therapy Department at Bellevue Hospital, under the directorship of Dr. Ira I. Kaplan, a series of lectures and clinics will be held March 24 in the Stewart Amphitheatre at the hospital. The speakers in the morning session will be:

Bradley L. Coley, Bone Tumors.
Douglas A. Quick, Advances in Radiation Therapy in 25 Years.
Isidor C. Rubin, Twenty-Five Years' Experience with Irradiation.

Physical and Mental Rehabilitation Convention.—The Association for Physical and Mental Rehabilitation will hold its third annual convention at the Hotel New Yorker, May 18-21. More than five hundred representatives from the nation's Veterans Administration, Army, Navy and Civilian Rehabilitation agencies will be present. Mr. Leo Berner, chief corrective therapist of the Veterans Administration Hospital, is chairman for the convention.

Meetings on Stillbirth and Neonatal Deaths.—The special Committee on Infantile Mortality of the Medical Society of the County of New York has been holding monthly meetings in the Academy of Medicine Building on the third Wednesday of each month at 4 p. m. Physicians, nurses and medical students are welcome. Each meeting is opened with case presentations of stillbirth or neonatal deaths which, in the opinion of members of the committee, were preventable. Remaining lectures are as follows:

March 16, Murray H. Bass, Maternal Contagion Causing Congenital Anomalies in the Newborn.
April 20, Paluel J. Flagg, Resuscitation of the Newborn.
May 18, Ralph L. Barrett, Breech Delivery as a Cause of Neonatal Death.

Dedicate Union Health Center.—The new $3,500,000 Union Health Center of the International Ladies Garment Workers Union, A.F.L., was dedicated February 19 at 275 Seventh Avenue. The center has six floors in the twenty-six story union-owned building. The occasion also marked the thirty-fifth anniversary of the founding of the first center, which operated in one room with one doctor. According to the *New York Times*, the center now has 148 physicians, 33 nurses, 27 technicians, 45 registrars, 5 pharmacists and 150 clerical and maintenance employees. The center last year provided to the members more than 410,000 medical services through twenty-three clinics, seven diagnostic and therapeutic services and five special departments.

Dr. Bernecker Honored.—More than nine hundred representatives of the hospital, health and welfare fields attended a testimonial dinner tendered Dr. Edward M. Bernecker, former commissioner of hospitals, at the Astor Hotel February 28. Dr. Bernecker retired as commissioner of hospitals February 1 and is administrator of hospital services for the New York University-Bellevue Medical Center. Mayor William O'Dwyer was the principal speaker. Among others were Drs. Marcus D. Kogel, successor to Dr. Bernecker; Howard R. Craig, director of the New York Academy of Medicine; Willard C. Rappleye,, dean of the Columbia University College of Physicians and Surgeons, who was Dr. Bernecker's predecessor at the medical center, and Mr. Thomas Pennell, Associated Press reporter who covered the Hospital and Health Building during Dr. Bernecker's tenure of office.

VERMONT

Courses in Epilepsy.—Two courses, each lasting a week, devoted to the study of epilepsy and convulsive disorders are being sponsored by the Vermont Association for the Crippled in cooperation with the University of Vermont College of Medicine, Burlington, and the Vermont State Medical Society. About eight practicing physicians in Vermont are eligible. The course will be held April 18-23. The Vermont Association for the Crippled will defray living expenses by remunerating each man taking the course to the extent of $125. Succeeding courses will be open to all active physicians in the state.

WEST VIRGINIA

Personal.—Dr. Guy R. Post has been confirmed by the Public Health Council as health officer and director of the new Wood-Parkersburg health department at Parkersburg. He is a native of Lewis County and has been located for several years at Clarksdale, Miss., where he has been director of the Coahoma County Health Department. Dr. Post, who will serve full time, assumed his new duties January 1, succeeding Dr. Robert P. Fosnaugh, Parkersburg, who has been serving in a part time capacity.

Association Committee to Confer with Labor Committee.—An advisory committee of three members of the West Virginia State Medical Association has been appointed by Dr. Thomas G. Reed, president, to consult with the three area medical administrators of the United Mine Workers' Health and Welfare Retirement Fund in the state. The committee is composed of Drs. Ray M. Bobbitt, Huntington, chairman; Fred Richmond, Beckley, and John P. Helmick, Fairmont. The area administrators in West Virginia are Drs. John T. Morrison, District 17, Charleston; Lorin E. Kerr Jr., Districts 31, 16 and 4, Morgantown, and Deane F. Brooke, District 29, Beckley.

Relief Doctors.—The chairman of the Council of the West Virginia State Medical Association at a recent meeting was directed to appoint two members to confer with a similar committee from the Public Health Council for the purpose of devising a plan providing for temporary practice by interns and residents in cases where "relief doctors" are needed in any part of the state. It was pointed out by Dr. Newman H. Dyer, Charleston, secretary of the council, that the recent ruling of the attorney general holds that such a proceeding would not be a violation of any part of the state's medical practice act. Subsequently, Drs. T. Maxfield Barber and Russel Kessel, both of Charleston, were named to confer with a committee from the Public Health Council.

Plans for Hospital Construction.—Whitesville, Webster Springs and Franklin with AA priority group rating for hospital construction have made plans to build hospitals without delay. A bond issue of $150,000 has been voted by the citizens of Webster Springs to match available federal funds for construction of a thirty bed hospital. Franklin has applied for federal funds for a community health clinic of fifteen beds, and Whitesville has selected a hospital site and employed an architect to draw plans for a hundred bed general hospital. Preliminary plans have been approved to the final working state for the construction of the first unit of the Charleston Memorial Hospital. Federal and local funds total $3,000,000. To assist small communities in West Virginia to construct hospital facilities and to match federal funds for this purpose, the state department of health has included in its budget a request for $1,000,000 annually for a two year period. The five remaining communities in the AA priority group, Chester, Weirton, Petersburg, Grantsville and Pt. Pleasant, have not yet applied for funds to participate in the hospital construction program.

PHILIPPINES

Philippine Association Desires Medical Publications.—The Philippine Medical Association is seeking donations of medical publications from institutions in the United States to help the medical profession on the islands. Libraries of the members of the association were destroyed during the last war and physicians have been without access to medical literature. All those willing to contribute should communicate with Antonio S. Fernando, M.D., secretary-treasurer, Philippine Medical Association, in care of the Philippine General Hospital, Manila. The association is willing to defray expenses of transportation. Rush Medical College, Chicago, is donating about 1,000 pounds of medical publications.

GENERAL

Meeting of Anesthesiologists.—The Southeastern Section of the American Society of Anesthesiologists will hold its annual meeting April 7-9 at the Statler Hotel, Washington, D. C. Dr. H. Boyd Stewart, Tulsa, Okla., president of the national association, will address the group Operative clinics will be held and both scientific and technical exhibits will be on display.

Medical Library Association Meeting.—The Medical Library Association will hold its annual meeting April 10-14 with headquarters at the Hotel Galvez, Galveston, Texas. The library of the University of Texas Medical Branch will be the host. Among the speakers will be Dr. John F. Fulton, New Haven, Conn., on "Function of Historical Collections in Medical Libraries."

Mr. Baruch Honored.—In recognition of the international influence of his activities in advancing the cause of physical medicine, honorary membership in the British Association of Physical Medicine has been granted to Mr. Bernard M. Baruch, statesman and founder in 1944 of the Baruch Committee on Physical Medicine. A $1,100,000 grant established the committee, whose objectives are increasing the number of physicians trained to teach and use physical medicine, providing for more extensive basic and clinical research and insuring the proper use of physical medicine in relationship to wartime rehabilitation and peacetime preparedness.

American Medical Golfing Association.—The Seaview Country Club has been chosen for the thirty-third tournament of the American Medical Golfing Association scheduled for June 6 during the American Medical Association session in Atlantic City. Dr. Jean A. Gruhler, 1616 Pacific Avenue, Atlantic City, is chairman of the local committee on arrangements. Drs. William C. Speidel, Seattle, and Charles E. Shannon, Chicago, president and president-elect respectively of the American Medical Golfing Association, announce that the Bay Course at Seaview will be utilized by medical golfers playing only 18 holes while both the Bay Course and the Woods Course will test the ability of the 36 hole golfers. Applications for A. M. G. A. Fellowship are available by writing Secretary Bill Burns, 2020 Olds Tower, Lansing 8.

College of Surgeons Sectional Meeting.—The American College of Surgeons will hold a sectional meeting for the Middle and Southern Atlantic states March 15-16 at the Hotel Statler in Washington, D. C. Following the dinner meeting March 15 at which Dr. Jaul B. Magnuson, Washington, D. C., will preside, a symposium on cancer will be held for the medical group. The speakers will be Drs. Henry W. Cave, New York; William E. Adams, Chicago, and Grantley W. Taylor, Boston. The hospital group will hold a meeting at 8 p. m. on "Hospital and Medical Public Relations" with Dr. Edwin L. Crosby of Baltimore presiding. Presiding officers at the two luncheon meetings for the medical group will be Rear Admiral Morton D. Willcutts, M.C., Bethesda, Commanding Officer, National Naval Medical Center, and Major General Raymond W. Bliss, M.D., Washington, Surgeon General, U. S. Army.

Gordon Research Conferences.—The Gordon Research Conferences for 1949, sponsored by the American Association for the Advancement of Science and formerly known as the Gibson Island Research Conferences, will be held June 20-September 2 at Colby Junior College, New London, N. H. The Gordon Research Conferences were established to stimulate research in universities, research foundations and industrial laboratories. This purpose is achieved by an informal type of meeting. The afternoons are available for recreation, reading, resting or participation in discussion groups. The purpose of the program is primarily to bring experts up to date on the latest developments and to provoke suggestions as to underlying theories and profitable methods of approach for making further progress. All information presented is not to be used without specific authorization of the person making the contribution, and no publications are prepared as emanating from the conferences. Persons interested in attending the conferences are requested to send in their applications on or before April 1 to the director, W. George Parks, Department of Chemistry, Rhode Island State College, Kingston, R. I. Each applicant must state the institution or company with which he is connected and the type of work in which he is most interested. Attendance at each conference is limited to 100.

American College of Physicians.—The annual session of the American College of Physicians will be held March 29-April 1 with headquarters at the Waldorf-Astoria Hotel, New York. Qualified physicians who are nonmembers are invited to attend but will be charged a registration fee of $15. Members of the Medical Corps of the Army and Navy, the U. S. Public Health Service and Veterans Administration, either of the United States or of Canada, may attend on presentation of credentials. Those speaking by invitation at the general sessions include:

Stanhope Bayne-Jones, New York, The Hospital as a Center of Preventive Medicine.
J. Earle Moore, Baltimore, Treatment of Syphilis.
J. Lawrence Pool, New York, Prefrontal Operations for the Treatment of Mental Illnesses.
Charles T. Dotter, New York, Clinical Angiocardiography.
George F. Cahill, New York, Diagnosis and Treatment of Pheochromocytoma.
Chris J. D. Zarafonetis, Ann Arbor, Mich., Therapeutic Possibilities of Para-Aminobenzoic Acid.
Stuart Mudd, Philadelphia, Electron Microscopy in Relation to the Medical Sciences.
Theodore E. Woodward, Baltimore, Chloromycetin and Aureomycin: Therapeutic Results.
Harry M. Rose, New York, Clinical Features and Laboratory Diagnosis of Rickettsial Pox.
DeWitt Stetten Jr., New York, Use of Isotopes as Metabolic Tracers.
Allen O. Whipple, New York, Surgery of Malignant Tumors of the Ampullary Area and Pancreas.
Robert R. Linton, Boston, Treatment of Bleeding Esophageal Varices by Portacaval Shunts.
Shields Warren, Boston, and John Z. Bowers, Washington, D. C., Acute Radiation Syndrome in Man.
Homer F. Swift, New York, Etiology of Rheumatic Fever.

The John Phillips Memorial Lecture will be given by Dr. Edwin B. Astwood, Boston, on "Natural Occurrence of Antithyroid Compounds as a Cause of Simple Goiter." Those speaking by invitation at the morning lectures offered on Wednesday and Friday include:

Homer W. Smith, Sc.D., New York, Clinical Implications of Recent Studies of Renal Function.
George N. Papanicolaou, New York, Survey of the Actualities and Potentialities of Exfoliative Cytology in Cancer Diagnosis.
John R. Neefe, Philadelphia, Viral Hepatitis: Problems and Progress.
John S. L. Browne, Montreal, Canada, Response of the Adrenal Cortex to Disease and Injury.

Clinics and clinical pathologic conferences will be conducted on Tuesday and Thursday mornings. At the annual convocation Wednesday evening at 8:30 Dr. Walter W. Palmer, New York, president of the college, will speak on "The Internist, Past, Present and Future," and the Convocation Oration will be presented by Henry A. Moe, a New York lawyer, on "The Doctor as Citizen." The banquet speaker Thursday evening will be David E. Lilienthal, LL.D., Washington, D. C.

CORRECTION

Research Grant from Lakeside Laboratories.—In the article entitled "Use and Misuse of Endocrine Therapy in Sterility," by Dr. Edward T. Tyler in The Journal, February 26, page 560, the first footnote in small type at the bottom of the page is in error and should have stated that certain studies in connection with this report were aided by a research grant from Lakeside Laboratories, Inc., Milwaukee.

Dosage of Undecylenic Acid.—In the article by Henry Harris Perlman in The Journal, February 12, entitled "Undecylenic Acid in Psoriasis and Neurodermatitis," page 446 under "Dosage, Method of Administering Undecylenic Acid, Untoward Effects and Reactions," line 5 should read as follows: "The initial dose for most adults is now 5 perles, each containing 0.5 Gm. of undecylenic acid, given three times daily after or before meals or in divided doses, with a daily total of 7.5 Gm." The tenth line should read as follows: "The effective dose for the average adult patient seems to be 15 or 20 perles (10 Gm.), given daily in divided doses for many weeks, without any harmful effect and without any disturbances of the gastrointestinal tract."

Marriages

William H. Victor, Rockaway Beach, N. Y., to Miss Priscilla Slesinger of Hewlett, N. Y., December 26.

James Clinton Prose, Memphis, Tenn., to Miss Ina Grace Ryan of Greensboro, N. C., at Grenada, Miss., December 17.

R. Kirby West, Oakland, Calif., to Miss Ann Kuchmy of Rochester, N. Y., December 27.

William Thomas Bacon, London, Ohio, to Miss Jean Marilyn Hackett of South Charleston, December 29.

Louis Gordon Sinclair to Miss Martha Elizabeth Niven, both of Raleigh, N. C., December 10.

Gardner Middlebrook, New York, to Miss Jane Machia of Water Valley, Texas, November 26.

George W. Weber, Reading, Pa., to Miss Harrie Louise Beckey of Harrisburg, December 17.

Deaths

Harry Stack Sullivan, Washington, D. C.; born in Norwich, N. Y., Feb. 21, 1892; Chicago College of Medicine and Surgery, 1917; member of the American Psychoanalytic Association, American Psychiatric Association, of which he had been secretary, and the American Orthopsychiatric Association; from 1923 to 1930 associate professor of psychiatry at the University of Maryland School of Medicine in Baltimore; served as director of clinical research at the Sheppard and Enoch Pratt Hospital in Towson, Md.; formerly professor of psychiatry and director of the department of psychiatry and neurology at the Georgetown University School of Medicine; faculty chairman of the Washington School of Psychiatry and president of the William Alanson White Psychiatric Foundation; during World War II consultant on psychiatry for the Selective Service System; received the first William Alanson White Memorial Award for distinguished contributions to psychiatry; editor of *Psychiatry;* died in Paris, France, January 14, aged 56, of cerebral hemorrhage.

Charles Edward Kiely ⊕ Cincinnati; born in Cincinnati June 22, 1887; Ohio-Miami Medical College of the University of Cincinnati, 1913; assistant professor of psychiatry at his alma mater; member of the House of Delegates of the American Medical Association from 1930 to 1932 and from 1934 to 1941; past president of the Cincinnati Academy of Medicine; member of the American Psychiatric Association and the Central Neuropsychiatric Association; on the staff of Christ Hospital, where he died December 30, aged 61, of carcinoma of the esophagus and tongue.

Arial Wellington George ⊕ Boston; Tufts College Medical School, Boston, 1906; specialist certified by the American Board of Radiology, Inc.; formerly on the faculty of his alma mater; member of the American Roentgen Ray Society, New England Roentgen Ray Society and the Radiological Society of North America; co-author of several books; affiliated with the Glover Memorial Hospital in Needham, Cape Cod Hospital, Hyannis, Lynn (Mass.) Hospital and the Brooks Hospital in Brookline, where he died December 24, aged 66, of coronary disease.

John Joseph Allen, Bell, Calif.; Baltimore Medical College, 1901; died December 6, aged 74, of lung abscesses and arteriosclerosis.

Victor Ludwig Altmann, New York; Medizinische Fakultät der Universität, Wien, Austria, 1905; member of the American Medical Association; died recently, aged 68, of coronary thrombosis.

Maurice P. Apmadoc, Chicago; Harvey Medical College, Chicago, 1902; also a dentist; died in the Cook County Hospital recently aged 76, of arteriosclerosis and myocarditis.

Florence Bailey, Lawrence, Mass.; College of Physicians and Surgeons, Boston, 1903; member of the American Medical Association; died December 24, aged 71, of chronic myocarditis and cerebral hemorrhage.

Francis Senter Bascom ⊕ Oakland, Calif.; Harvard Medical School, Boston, 1929; specialist certified by the American Board of Internal Medicine; on the staff of the Peralta Hospital; died December 23, aged 46.

Albert Raymond Bell, Tomah, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1900; member of the American Medical Association; past president of the school board, of which he had been a member for many years; affiliated with St. Mary's Hospital in Sparta, where he died December 12, aged 76, of cerebral hemorrhage.

George A. Bradford, Columbia, Mo.; St. Louis College of Physicians and Surgeons, 1888; on the staffs of the Boone County and Noyes hospitals; died November 15, aged 83.

Clarence Hughes Bulkley ⊕ La Plata, Mo.; Keokuk (Ia.) Medical College, College of Physicians and Surgeons, 1907; served during World War I; died November 8, aged 65.

John Kendall Chorlog ⊕ Madison, Wis.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; died December 14, aged 75, of coronary thrombosis.

Irving Taylor Clark, Rochester, N. Y.; University of Pennsylvania Department of Medicine, Philadelphia, 1902; died December 19, aged 70, of cerebral hemorrhage.

George C. Collins, Wheatcroft, Ky.; Hospital College of Medicine, Louisville, 1907; died December 14, aged 71.

Isaac Cohn, Brooklyn; University and Bellevue Hospital Medical College, New York, 1914; member of the American Medical Association; affiliated with Beth Moses Hospital and the Brooklyn Cancer Institute; died December 9, aged 61.

Emery Golden Coyle, Coffeyville, Kan.; St. Louis University School of Medicine, 1911; member of the American Medical Association; died in the Research Hospital, Kansas City, Mo., December 11, aged 59, of duodenal ulcer and cerebral hemorrhage.

Wilbur Saunders Crowell, Brecksville, Ohio; Western Reserve University Medical Department, Cleveland, 1899; veteran of the Spanish-American War; formerly member of the city council; served on the staff of Cleveland City Hospital; died December 9, aged 76, of cerebral hemorrhage.

Leo Francis Crowley, Jersey City, N. J.; Georgetown University School of Medicine, Washington, D. C., 1909; medical examiner for the police and fire departments; affiliated with St. Francis and Christ hospitals; died December 9, aged 64.

Carl Albert Dahlen ⊕ Boston; Tufts College Medical School, Boston, 1918; instructor in dermatology at the Boston University School of Medicine; on the staff of the Massachusetts Memorial Hospitals, where he died recently, aged 56, of cerebral hemorrhage.

Paul Charles Dier, Milwaukee; Marquette University School of Medicine, Milwaukee, 1915; member of the American Medical Association; died December 18, aged 61, of coronary occlusion.

Frank Lumsden Eastman, Kingston, N. Y.; New York Homeopathic Medical College and Flower Hospital, New York, 1909; member of the American Medical Association; on the staff of the Benedictine Hospital; died in Middletown, December 11, aged 62.

Harry George Erwin, Lagrange, Ind.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1909; member of the American Medical Association; served during World War I; formerly health commissioner of Lagrange County; served as coroner of Allen County; on the staff of Lagrange County Hospital; died November 25, aged 65, of carcinoma of the gallbladder and liver.

Joseph Harold Evans, New Haven, Conn.; Boston University School of Medicine, 1902; formerly secretary of the Connecticut Homeopathic Medical Examining Board; died November 25, aged 70, of coronary occlusion.

Albert Fisher, North Judson, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1904; member of the American Medical Association; county health officer; affiliated with the Holy Family Hospital in La Porte; head of the Selective Service Board of Starke County during World War II; died December 3, aged 70, of cardiac decompensation and lymphosarcoma.

Louis P. G. Gouley ⊕ Huntington, N. Y.; Denver and Gross College of Medicine, 1908; since 1916 on the attending staff of the Huntington Hospital, where he was chief of obstetrics from 1933 to 1938; died December 12, aged 70, of cerebral thrombosis.

William Charles Gulde, St. Cloud, Minn.; Drake University College of Medicine, Des Moines, 1907; died suddenly, recently, aged 67.

Charles O. Hadley, Nashville, Tenn.; Meharry Medical College, Nashville, Tenn., 1899; formerly on the faculty of his alma mater; served in France during World War I; affiliated with the George W. Hubbard Hospital of Meharry Medical College; died in the Veterans Administration Hospital December 14, aged 72, of diabetes mellitus.

Ira May Hardy, Kinston, N. C.; Medical College of Virginia, Richmond, 1901; member of the American Medical Association; past president of the Lenoir County Medical Society and the Seaboard Medical Association; formerly affiliated with the Caswell Training School; one of the founders of the Fowle Memorial Hospital in Washington; for many years a trustee of the Good Shepherd Hospital at New Bern; died November 21, aged 74.

Carlos Louis Henriquez, New York; Columbia University College of Physicians and Surgeons, New York, 1900; died in South America, recently, aged 69, of carcinoma of the rectum.

Alexander Codling Howe, Brooklyn; University of the City of New York Medical Department, New York, 1893; member of the American Medical Association; fellow of the American College of Surgeons; specialist certified by the American Board of Otolaryngology; affiliated with the Brooklyn Eye and Ear Hospital and the Jewish Hospital; died December 23, aged 85, of chronic myocarditis.

Chiles Lester Keithly, Milo, Mo.; Washington University School of Medicine, St. Louis, 1904; died in Nevada November 12, aged 75, of heart disease.

John Henry Kelley, Atlanta, Ga.; Atlanta College of Physicians and Surgeons, 1905; died November 20, aged 85, of chronic endocarditis and arteriosclerosis.

George Edwin Knappenberger, Kansas City, Mo.; University of Kansas School of Medicine, Kansas City, Kan., 1911; member of the American Medical Association; formerly member of the Missouri State Board of Health; served during World War I; affiliated with St. Luke's, St. Joseph's and the Research hospitals; died in San Diego, Calif., December 27, aged 60, of coronary thrombosis.

Alexander Marcellus Lisenbee, Sparkman, Ark.; Tulane University of Louisiana School of Medicine, New Orleans, 1910; member of the American Medical Association; died in Baptist Hospital, Litle Rock, November 11, aged 62, of heart disease.

Aljah Wright Lloyd, Hammond, Ind.; Hospital College of Medicine, Louisville, Ky., 1900; member of the American Academy of Ophthalmology and Otolaryngology; died in St. Margaret Hospital November 19, aged 78, of coronary thrombosis.

William Kiddoo Lloyd ⊕ Anniston, Ala.; Tulane University of Louisiana School of Medicine, New Orleans, 1921; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; served during World War I; past president of the Calhoun County Medical Society and the Alabama Association of Obstetricians and Gynecologists; chief of rotating staff in obstetrics at the Anniston Memorial Hospital; instantly killed December 23, aged 49, in a plane crash.

Charles Carey Maupin ⊕ Louisville, Ky.; University of Louisville School of Medicine, 1912; affiliated with St. Joseph's Infirmary, Kentucky Baptist Hospital, Norton Memorial Infirmary, Methodist Deaconess Hospital, SS. Mary and Elizabeth Hospital, and the Children's Free Hospital; died in Buechel December 5, aged 60, of carcinoma of the pancreas.

John Henry Morris, Pulaski, Tenn.; University of Louisville (Ky.) Medical Department, 1909; member of the American Medical Association; served in France during World War I; county health officer; died November 26, aged 61, of carcinoma of the stomach.

Jonah Nichols, Gulfport, Miss.; University of Virginia Department of Medicine, Charlottesville, 1887; member of the American Medical Association; died in Memorial Hospital December 26, aged 83, of heart disease.

Harold Frederick Noble ⊕ Fort Madison, Iowa; State University of Iowa College of Medicine, Iowa City, 1926; city health commissioner; died December 28, aged 46, of cerebral hemorrhage.

John Aldine Norford, Lynchburg, Va.; University of Virginia Department of Medicine, Charlottesville, 1903; drowned near Gladstone December 16, aged 72, when his boat capsized while he was duck hunting.

William Burrill Odenatt ⊕ Philadelphia; Medico-Chirurgical College of Philadelphia, 1897; secretary of the local draft board no. 52 during World War II; since 1942 medical director of the Stetson Hat Company; formerly on the staffs of Stetson and Nazareth hospitals; died December 3, aged 62.

Paul Julius Opperman, Cleveland; University of Wooster Medical Department, Cleveland, 1895; died in St. Luke's Hospital December 17, aged 76, of cerebral hemorrhage.

Marion Ousley-Russell, Elgin, Ill.; the Hahnemann Medical College and Hospital, Chicago, 1890; died December 7, aged 89, of cerebral hemorrhage and arteriosclerotic heart disease.

Harry S. Piggins, Milwaukee; Rush Medical College, Chicago, 1885; founder and a director of the Wisconsin State Bank, of which he was vice president; died December 20, aged 88, of cardiovascular disease.

Florence Faulkner Poole, Norco, Calif.; College of Physicians and Surgeons, Boston, 1904; died in the Corona (Calif.) Hospital recently, aged 69, of cerebral hemorrhage.

Frank Julius Quist ⊕ Worcester, Mass.; Rush Medical College, Chicago, 1905; an officer during World War I; director and vice president of the Guaranty Trust Company; served on the staffs of the Fairlawn and City hospitals; died in St. Petersburg, Fla., December 20, aged 74, of leukemia.

William Egbert Ragsdale ⊕ Memphis, Tenn.; College of Physicians and Surgeons, Memphis, 1908; for many years on the staff of St. Joseph's Hospital; served as local surgeon for the Illinois Central Railroad; died December 8, aged 67, of coronary thrombosis.

James Emery Rawlings ⊕ Daytona Beach, Fla.; University of Maryland School of Medicine, Baltimore, 1904; veteran of the Spanish-American War and World War I; died in Halifax Hospital December 23, aged 69.

Ezra Clark Rich, Los Angeles; Jefferson Medical College of Philadelphia, 1894; member of the American Medical Association and the Utah State Medical Association; fellow of the American College of Surgeons; formerly practiced in Ogden, Utah, where he was on the staff of the Thomas D. Dee Memorial Hospital; died in the Good Samaritan Hospital December 27, aged 84, of cerebral thrombosis.

Luther Enoch Roberts, Rosedale, W. Va.; University of Louisville (Ky.) Medical Department, 1907; died December 15, aged 74, of heart disease.

Richard Ambrose Roche, Chicago; Northwestern University Medical School, Chicago, 1912; formerly on the staff of Holy Cross Hospital; affiliated with the Little Company of Mary Hospital, where he died December 26, aged 61, of heart disease.

Stephen T. Ross, Winder, Ga.; Louisville (Ky.) Medical College, 1891; member of the American Medical Association; died in St. Mary's Hospital, Athens, December 28, aged 81, of bronchopneumonia and carcinoma of the stomach.

Claude Nelson Rucker, Marytown, W. Va.; Medical College of Virginia, Richmond, 1903; served during World War I; formerly associated with the Veterans Administration in Charleston; died November 29, aged 68, of cerebral hemorrhage.

William Morvel Wesley Rynard ⊕ Stamford, Conn.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1924; member of the American Society of Anesthetists, Inc.; died December 23, aged 49.

Charles Gilbert Sabin, Portland, Ore.; Northwestern University Medical School, Chicago, 1907; died in Herrin, Ill., December 11, aged 72, of injuries received in an automobile accident.

Hans Richard Sauer ⊕ Buffalo; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, 1929; specialist certified by the American Board of Urology, Inc.; died in Roswell Park Memorial Institute November 30, aged 45, of heart disease.

Stephen Douglass Sauer, Harrisburg, Pa.; Jefferson Medical College of Philadelphia, 1891; Minneapolis College of Physicians and Surgeons, 1896; died in Harrisburg State Hospital recently, aged 87, of bronchopneumonia.

Louis John Saxe ⊕ Phoenix, Ariz.; Duke University School of Medicine, Durham, N. C., 1934; certified by the National Board of Medical Examiners; specialist certified by the American Board of Psychiatry and Neurology, Inc.; member of the American Psychiatric Association; formerly superintendent of the Arizona State Hospital at Phoenix; died in St. Joseph's Hospital December 13, aged 40, of cardiac decompensation.

Franklin E. Schenck, Burlingame, Kan.; College of Physicians and Surgeons, Keokuk, Iowa, 1882; member of the American Medical Association; died November 19, aged 92, of carcinoma of the descending colon and chronic prostatitis.

Edwin Schiller ⊕ Elizabeth, N. J.; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1919; affiliated with the Beth Israel and St. Michael's hospitals in Newark; died November 18, aged 57, of coronary thrombosis

Jerome Gerald Schnedorf, Santa Barbara, Calif.; Northwestern University Medical School, Chicago, 1938; specialist certified by the American Board of Surgery; served during World War II; member of the American Medical Association, which in 1940 awarded him the Certificate of Merit for his research on anoxia; died at Big Bear, in December, aged 35, of anoxia caused by a gas heater.

Francis Marion Burlingame Schramm, Johnstown, Pa.; Jefferson Medical College of Philadelphia, 1909; served during World Wars I and II; formerly member of the school board; died in Venice, Fla., November 15, aged 65.

Solomon Schwager ⊕ Pittsfield, Mass.; University and Bellevue Hospital Medical College, New York, 1917; affiliated with St. Luke's Hospital and the House of Mercy Hospital, where he died November 30, aged 58, of hypertensive cardiovascular disease.

Clarence William Schwalm ⊕ Shoemakersville, Pa.; Temple University School of Medicine, Philadelphia, 1923; died November 2, aged 64, of coronary occlusion.

Otis Elmer Senour, Erlanger, Ky.; Hospital College of Medicine, Louisville, 1904; died November 5, aged 67.

Glenn Elmo Shawhan, Nampa, Idaho; Denver and Gross College of Medicine, 1904; member of the American Medical Association, American Academy of Ophthalmology and Otolaryngology and the Pacific Coast Oto-Ophthalmological Society; died recently, aged 72.

Joseph Peter Sheridan ⊕ Laurelton, N. Y.; University of the City of New York Medical Department, New York, 1892; an Affiliate Fellow of the American Medical Association; formerly chief diagnostician for the health department in Queens County; for many years on the staff of St. John's Hospital in Brooklyn; at one time affiliated with the Colored Home and Hospital in Manhattan and the Home for the Blind at Richmond Hill; died November 13, aged 78.

Andrew George Shetter, Richmond, Va.; Medical College of Virginia, Richmond, 1917; member of the American Medical Association; died December 13, aged 61, of cerebral hemorrhage and hypertension.

Joseph K. Shriver Jr., Cambridge, Md.; Baltimore Medical College, 1892; member of the American Medical Association; died November 12, aged 71, of coronary occlusion and hypertension.

Walter Heinman Simmons ⊕ Pine Bluff, Ark.; Vanderbilt University School of Medicine, Nashville, Tenn., 1903; died December 14, aged 69, of coronary occlusion.

Benjamin James Slater ⊕ Rochester, N. Y.; Cornell University Medical College, New York, 1914; member of the American Association of Industrial Physicians and Surgeons; served during World War I; associate medical director of Eastman Kodak Company; affiliated with Rochester General and Strong Memorial hospitals; died December 4, aged 60, of coronary occlusion.

Leith Hollingshead Slocumb, Los Angeles; Washington University School of Medicine, St. Louis, 1913; member of the American Medical Association; died November 22, aged 63, of coronary occlusion.

George Lee Smith, Morrison, Va.; College of Physicians and Surgeons, Baltimore, 1892; member of the American Medical Association; died November 22, aged 79.

James Atkinson Smith, St. Louis; Barnes Medical College, St. Louis, 1905; for many years affiliated with the city health department; examining physician for the city board of education; died in Christian Hospital December 30, aged 67, of pneumonia.

Lester Pennington Smith, Muskogee, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1925; member of the American Medical Association; chief medical officer for the regional office of the Veterans Administration; died in Veterans Administration Hospital, Jefferson Barracks, Mo., recently, aged 48.

Ralph Vernon Smith, Britton, Okla.; Missouri Medical College, St. Louis, 1898; member of the American Medical Association; fellow of the American College of Surgeons; past president of the Oklahoma State Medical Association and the Oklahoma County Medical Society; served during World War I; died November 27, aged 77.

William Hallick Snyder, Brooklyn; Long Island College Hospital, Brooklyn, 1888; served as senior surgeon and member of the board of directors of the Brooklyn Eye and Ear Hospital; member of the staffs of St. Christopher's Hospital, Holy Family Hospital, St. Catherine's Hospital and St. John's Hospital; died November 12, aged 86, of cerebral hemorrhage.

Jean David Spaid ⊕ Dayton, Ohio; Ohio State University College of Medicine, Columbus, 1922; specialist certified by the American Board of Anesthesiology; member of the American Society of Anesthetists; on the staffs of the Good Samaritan and Miami Valley hospitals; consulting anesthetist for the Ohio Masonic Home in Springfield; died December 14, aged 54, of heart disease.

John M. Spaulding ⊕ Los Angeles; University of Louisville (Ky.) Medical Department, 1907; medical examiner for many insurance companies; medical director for the Unity Mutual Life Insurance Company; died in the San Pedro (Calif.) Hospital, November 13, aged 67, of cerebral thrombosis.

R. P. Ellis Starr ⊕ Denver; University of Louisville (Ky.) Medical Department, 1912; died in the Colorado General Hospital November 10, aged 66.

Joseph Mefford Steim, New Kensington, Pa.; Medico-Chirurgical College of Philadelphia, 1898; member of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology; vice president and director of the First National Bank; consultant in ophthalmology at the Citizens General Hospital, where he died November 13, aged 71, of carcinoma of the pharynx.

Thomas Calderwood Stephens, Sioux City, Iowa; College of Physicians and Surgeons, Medical Department Kansas City University, 1904; died November 24, aged 72.

Daniel Cornelius Sullivan, Jersey City, N. J.; McGill University Faculty of Medicine, Montreal, Canada, 1919; affiliated with the Berthold S. Pollak Hospital for Chest Diseases; assistant medical director of the Central Railroad of New Jersey; died in Christ Hospital December 20, aged 55, of primary carcinoma of the liver.

Clyde Byron Terwillegar, Steubenville, Ohio; University of Cincinnati College of Medicine, 1912; past president of the Jefferson County Medical Society; died recently, aged 58.

Henry Keener Tippins, Geneva, Ala.; Chicago College of Medicine and Surgery, 1908; member of the American Medical Association; died in Hartford November 3, aged 67, of a spinal injury due to an automobile accident in 1945.

William Darracott Travis ⊕ Covington, Ga.; Baltimore Medical College, 1893; served as health officer of Newton County and Covington; killed instantly December 6, aged 78, in an automobile accident.

Raymond Leo Traynor ⊕ Omaha; John A. Creighton Medical College, Omaha, 1919; clinical professor of medicine at his alma mater; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; affiliated with Creighton Memorial St. Joseph's Hospital; died November 10, aged 54, of malignant hypertension and basilar cerebral hemorrhage.

Homer A. Trotter, Buffalo; University of Buffalo School of Medicine, 1915; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; affiliated with the Buffalo General Hospital and the U. S. Marine Hospital; died October 19, aged 63, of aortic stenosis and rheumatic fever.

Edward Logan Underwood, Oklahoma City; Barnes Medical College, St. Louis, 1906; died December 11, aged 79.

Henry Anthony Viti, Jersey City, N. J.; Regia Università degli Studi di Roma, Facoltà di Medicina e Chirurgia, Italy, 1936; member of the American Medical Association; served during World War II; on the staff of St. Francis Hospital, where he died December 11, aged 41, of carcinoma of the right bronchus.

Alphonse Edmund Walch ⊕ Minneapolis; St. Louis University School of Medicine, 1933; on the faculty of the University of Minnesota Medical School; specialist certified by the American Board of Internal Medicine; affiliated with the Minneapolis General Hospital, Abbott Hospital and St. Mary's Hospital, where he died November 14, aged 41, of carcinoma of the lung.

Frank Jerome Walker, Wichita, Kans.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1902; served in France during World War I; at one time member of the county medical board; died in St. Francis Hospital December 1, aged 74, of cerebral hemorrhage.

James York Welborn ⊕ Evansville, Ind.; Marion-Sims College of Medicine, St. Louis, 1899; fellow of the American College of Surgeons; affiliated with Welborn Memorial Baptist Hospital, where he died December 21, aged 75, of carcinoma of the pancreas.

Frank Raymond Whelply Jr., Long Beach, Calif.; University of Buffalo School of Medicine, 1918; member of the American Medical Association; served during World War I; for many years chief of the division of communicable diseases of the Buffalo Department of Health; on the staffs of Seaside and Community hospitals; died November 24, aged 55, of coronary disease.

John Edwin Wilson, Falmouth, Ky.; Medical College of Ohio, Cincinnati, 1888; member of the American Medical Association; for many years mayor; died December 27, aged 81, of coronary occlusion.

Charles Joseph Wivell, Scranton, Pa.; Baltimore Medical College, 1901; died in the Moses Taylor Hospital November 26, aged 72, of coronary thrombosis.

George W. Wood, Oxford, Fla.; Birmingham Medical College, 1905; died November 2, aged 85.

Foreign Letters

AUSTRALIA

(From Our Regular Correspondent)

Feb. 3, 1949.

Epidemic of Salmonella Gastroenteritis

During 1948 in Brisbane, Queensland, an epidemic of gastroenteritis affected over 500 children with 89 deaths. The epidemic was due to Salmonella bovis-morbificans. The infection was concentrated in infants under 2 years old. Of 150 persons from whom the organisms were isolated, 108 were infants under 1 year and 30 were between 1 and 2 years of age. The outstanding clinical feature was a degree of toxemia out of all proportion to the symptoms referable to the bowel. There was little mucus and blood, the stools were fluid or semifluid and soon became solid or pasty. It was in this latter stage that the causative organism was more readily isolated from the stool. The children remained infected for a longer period than their clinical condition would indicate.

The epidemic was predominantly institutional; 56 per cent of the proved cases occurred in hospitals or institutions which care for young children, and 11 per cent occurred in housing camps. The incidence of infection was higher at weaning stage, and lower in infants fully breast fed. There were undoubtedly a considerable number of cases of cross infection at the Brisbane Children's Hospital. The evidence indicated that the transmission was through the medium of the infected napkin, and it became necessary to institute a regimen whereby the napkins of all children, prior to any cleansing action were immersed in boiling water for twenty minutes.

The bacteriologic studies of these infections were made by I. M. and M. J. Mackerras of the Queensland Institute of Medical Research in Brisbane. These investigators received considerable help from the descriptions by Ewing and Bruner of their experience with the United States Army Laboratory in Italy, the account being published in the *American Journal of Clinical Pathology* (17: 1, 1947).

In a more detailed study of the means of transmission of infection, the Salmonella organisms were found in cockroaches, mice, rats and cats. The organisms were also isolated from brushes and sinks used in the cleansing of napkins and from nail brushes used by the nursing staff. The sulfonamide group of drugs was ineffective in the treatment of this condition. Therapy was mainly supportive to overcome the dehydration and malnutrition. Intravenous therapy with isotonic sodium chloride solution, dextrose, human serum and especially protein hydrolysate was a routine in the treatment. The best results were given by protein hydrolysate. Several cases occurred in the Women's Hospital, among the newborn babies. Mackerras considers that diagnostic cultures should be continued to not less than the sixth, and clearing cultures during convalescence to not less than the third, before a Salmonella infection is excluded.

Studies in the Transmission of Rubella

During the last decade, rubella (German measles) has changed from a trivial infection of little medical interest to an important public health problem. This is due entirely to the recognition in Australia of the fact that infection of a woman in the early months of pregnancy was liable to be followed, in a high percentage of cases, by serious damage to the infant, notably cataract and nerve deafness.

A fresh prevalence of rubella in Victoria provided an opportunity for the Walter and Eliza Hall Institute of Medical Research to undertake experiments in the transmission of this infection. Professor Burnett made intensive efforts to cultivate the virus in chick embryos by various routes and at various ages, but was unsuccessful. No lesions were observed, nor were positive complement fixation reactions obtained with human convalescent serum. Negative complement fixation results were also obtained with concentrated throat washings as antigen.

Infection was induced in volunteer human subjects (mostly university women students) by inhalation of atomized throat washings; a compressed air atomizer was found to be the most effective. Nine infections were produced in 16 subjects, and, since none of the other 7, who were in close contact with the infected subjects, contracted rubella as secondary cases, it is felt that this dosage was fully effective with all susceptible persons.

These studies indicate that the virus is present in high concentration in washings from the throat taken at the height of the rash. The virus can be preserved in fully active state for at least three months at the temperature of solid carbon dioxide. The virus is filterable through a 800 micron membrane and is unaffected by high concentrations of penicillin. The incubation period to the appearance of the rash ranged from 13 to 20 days, with a mean of 15.9 days. The disease produced by inoculation was transmissible by ordinary contact to susceptible subjects.

The practical significance of this work is that it is now possible, by inducing infection in the young woman, to guarantee her the virtually complete elimination of the chance of infection during any subsequent pregnancy.

The second part of the study was the protective effect of convalescent serum from 55 convalescent volunteers. Serum was prepared and a concentrated gamma globulin was produced. This globulin has been used to prevent infection in women who have been exposed to rubella at a vulnerable stage of pregnancy. In 22 instances of proved or possible contact serum has been administered, and so far in none of these cases has a rubella rash subsequently been confirmed.

Social and Nutritional Factors in Disease

The study of the domestic, economic, occupational, educational and psychologic aspects of patients attending the Royal Melbourne Hospital provided valuable data as to the cause of malnutrition. Investigations were made by Miss C. N. Turner, a dietitian, and Miss M. A. Mackay, an almoner, working under the direction of the clinical research unit of the Walter and Eliza Hall Institute of Medical Research. Three important classes resolved themselves as this study developed. First is the solitary existence group, which included those who live alone in poor circumstances in a room or hostel, and who are sorely tempted to cast aside the normal Australian diet and resort to infrequent, monotonous, ill balanced, ill prepared meals.

The second group is occupational. The nature of a man's occupation may influence his dietetic habits; for example, a cook is subjected to considerable mental and physical stress and is continually sampling foods often rich in carbohydrate and deficient in protein and vitamins. These two factors dull the appetite and discourage him from taking regular meals. Truck drivers, traveling salesmen and night watchmen are others who suffer in this way.

The third is that group which takes alcohol to excess. The alcohol supplies a considerable number of calories and satisfies the appetite. The appetite is also dulled by the development of chronic gastritis. The chief deficiencies noted in this series were of calcium, iron and members of the vitamin B complex, especially thiamine hydrochloride. Minor deficiency in vitamin C was common, and 2 cases of frank scurvy were encounter

DENMARK

(From Our Regular Correspondent)

COPENHAGEN, Feb. 9, 1949.

Advice on Influenza

The State Serum Institute in Copenhagen has recently issued a memorandum on influenza to serve as a guide to its most outstanding features. It is pointed out that the present epidemic seems to have started last December in Italy, whence it has spread slowly to neighboring countries. In Italy and France it has been very extensive, some 20 to 25 per cent of the population contracting it. But hitherto it has always run a mild clinical course, fever lasting only two or three days and the patient being well again within a week. Pulmonary complications are exceptional and show a preference for the old and feeble. The mortality has been almost negligible. Laboratory investigations have led to the recognition of the B virus in Italy and the A virus in France, but in nearly half of the cases investigated there has been some doubt about the etiology, and it is possible that several strains of the virus of influenza may exist side by side.

Danish doctors are advised to abstain for the present from vaccinating against influenza with standard vaccines derived from virus A and B because there are still doubts as to the etiology of the present epidemic and because the disease runs such a benign course. Besides, such vaccination against influenza offers no certain guarantee against it. The State Serum Institute wishes for the present to keep intact its stores of influenza vaccine, for which there may be a real need later on. As soon as new strains are isolated, arrangements will be made for their incorporation in the vaccine, the effectiveness of which would thus be raised; this would be well if by any chance the present epidemic were to assume a more serious character. Doctors are warned against careless despatch to the institute of material for examination; a certain technical skill is needed for the collection of such material.

The Antabus® Treatment of Alcoholism

Since we are certain to hear much about the antabus® treatment of alcoholism in the next few years, it is well at once to stake out the claims which Denmark can make to pioneer work in this field. In December 1947, the firm of chemists Medicinalco gave Dr. O. Martensen-Larsen (who has for long associated himself with the treatment of alcoholic addicts) a supply of tetraethylthiuram disulfide to which the trade name of antabus® has been applied. Given by itself in doses up to 2 Gm., it usually causes no discomfort, but when even a small quantity of alcohol is consumed at the same time, the two drugs combine to form acetaldehyde, which provokes exceedingly unpleasant reactions such as nausea and vomiting. After this condition has lasted from half an hour to four hours, the patient feels tired and drowsy, but he recovers completely in a short time. The distaste he thus acquires for alcohol may last for several days.

Dr. Martensen-Larsen has given antabus® to some 300 alcoholic addicts. Last fall he published in the Danish medical press a detailed account of his first 50 cases with an observation period of over six months. The drug was given daily, and there were no untoward complications. Social recovery or considerable improvement could be claimed in 35 cases. All the remaining 15 patients had discontinued the treatment for some reason or other. The conclusion is drawn that antabus® is effective in checking the consumption of alcohol but needs the support of intensive psychotherapy. The lay press has been quick to appreciate the dramatic element in this short cut to the alleged cure of a very chronic condition, and there are rumors of a stag party whose festivity was much impaired by the introduction of antabus® by stealth into their repast by a lady anxious to save her husband from alcoholic indiscretions. It has already been seriously suggested that chronic alcoholic addicts who have repeatedly fallen foul of the law should be given the choice between antabus® and prison.

Progress in the Radiologic Treatment of Cancer

The report for the period 1947-1948 of the Danish National Association for Combating Cancer contains much encouraging information. Nearly all the cases of cancer of the cervix of the uterus are now concentrated at the radium station for radium-roentgen treatment, and an analysis of some 4,000 patients over a five year period shows that when all the stages of this condition are included in one a cure may be claimed in approximately every other case. Since the introduction in 1940 of the roentgen-rotation treatment of cancer of the esophagus, some 500 patients have been treated for this condition at the radium station. Though a few have achieved what seems to be a permanent recovery, the effects of this treatment must be regarded as palliative rather than as permanently curative.

An analysis of 115 cases of cancer of the larynx in which radiologic treatment was given in the period from 1931 to 1942 at the radium station shows that 54 persons were cured as judged by freedom from symptoms for at least five years. In the two earliest stages of cancer of the vocal cords, roentgen treatment yielded very good results in 92 and 85 per cent respectively. Even in cases of advanced and inoperable disease, good results were achieved in 26 per cent. The report also gives an encouraging account of the radiologic treatment of 111 cases of tumors of the testicles, 40 per cent of the patients being symptom free after an interval of at least five years. The association has hitherto struggled along on a more or less voluntary basis, but recently the state has made a substantial contribution to its funds. With such material aid from public funds, the association would be more at liberty to expand its activities in certain directions such as research.

Denmark as a Center for Tuberculosis Research

It is gratifying that the Scandinavian countries in general, and Denmark in particular, are becoming more and more a tuberculosis Mecca to which doctors come from all parts of the world for inspiration and guidance. This claim depends to a large extent, but by no means exclusively, on BCG research. In the information service for February 1 of the League of Red Cross Societies it is pointed out that, under the auspices of the Danish Red Cross, forty-one doctors from eleven different countries were invited in 1948 to participate in its three month course. In an editorial note in the *Journal of the Danish Red Cross* (1949, no. 1), reference is made to the close association of the Scandinavian countries with the World Health Organization. The "Medical College" of the Danish Red Cross has provided for the free residence and postgraduate training in tuberculosis work of hundreds of doctors from all parts of the world.

An International Appointment for Dr. Gunnar Alsted

Dr. Gunnar Alsted of the University of Copenhagen, who has held a research fellowship in medicine granted by Harvard University and a senior appointment at the Bispebjerg and Fredriksberg hospitals in Copenhagen, has been appointed as from the beginning of 1949 as the Director of the Health Bureau of the League of Red Cross Societies with headquarters in Geneva.

Correspondence

LITHIUM INTOXICATION

To the Editor:—I have recently observed that one of the table salt substitutes (westsal®, marketed by Westwood Pharmaceuticals, Division of Foster-Milburn Co., Buffalo, N. Y.) may cause toxic symptoms in patients following a 200 mg. low sodium diet. This salt substitute contains 25.00 per cent lithium chloride, 0.20 per cent citric acid and 0.01 per cent potassium iodide. I feel that it is important to bring this observation to the attention of the practitioner because these symptoms may simulate those which are already present or may occur, because of the very disease for which the low sodium diet is being given. The 2 patients whom I am reporting in some detail (*Univ. Hosp. Bull.*, Ann Arbor 15: 9-10 [Feb.] 1949), after taking westsal® a few months, showed jerky tremor of the arms, unsteadiness in gait, generalized weakness, exhaustion and blurred vision. These symptoms were entirely new to the patients and disappeared a few days after withdrawal of the westsal,® no other changes having been made in their treatment. The two other patients mentioned in the report complained of a jerky tremor and generalized weakness while taking westsal.® These symptoms disappeared after withdrawal of the salt substitute and have not recurred.

After having looked up some of the old medical literature on lithium, I felt that these symptoms were rather typical of lithium intoxication. There is practically nothing being written on this subject at the present time, even in pharmacology textbooks, because lithium salts were rarely used in the present day treatment of disease until westsal® appeared on the market as a table salt substitute. Therefore, these symptoms could easily be misinterpreted and their true cause go unrecognized.

Whether or not this intoxication in my patients was due to their being on a low sodium diet, or due to their individual susceptibility to the drug or due to renal disease, I do not know. However, one of them had a normal nonprotein blood nitrogen level at the time the symptoms were rather pronounced, and routine urinalyses had always been normal. The other patient was 81 years old and may well have had some renal impairment, although a single urine specimen showed no albumin or sugar and had a specific gravity of 1.027.

Although westsal® comes closer to the taste of sodium chloride than other substitutes I have tried and although many patients can use it without toxic manifestations, I still feel that the practitioner should be warned of its possible toxic reactions, so that he may be on the lookout for them.

A. M. Waldron, M.D.,
Ann Arbor, Mich.

VITAMIN E IN HEART DISEASE

To the Editor:—The recent editorial comment concerning vitamin E in The Journal (138: 1159 [Dec. 18] 1948) seems to us to warrant discussion. In the past year, there has been extensive publicity in the lay press advocating the use of vitamin E in various forms of heart disease. Enthusiastic recommendations in such periodicals as *Coronet*, the *New York Times* and other newspapers, and extensive advertising campaigns by less scrupulous drug companies, have made the public and even some physicians all too conscious of the supposed miracles to be expected from vitamin E. Hardly a week goes by now that some one does not attempt to acquaint us with the newer therapeutics. As far as we know, there has been no published confirmation of the work emanating from Canada. A critical analysis of the glowing reports published by Vogelsang, Shute and Shute certainly did not leave us with the same degree of enthusiasm. The first editorial comment in The Journal (131: 764 [June 29] 1946) pointed out the lack of scientific basis for recommending the use of vitamin E in heart disease. In the most recent editorial discussion, however, The Journal made no mention of a number of controlled studies published in the past year, testifying to the poor results obtained with vitamin E therapy.

Makinson and colleagues (*Lancet* 1: 102 [Jan. 17] 1948) reported no improvement in 22 patients with angina pectoris treated with vitamin E. Levy and Boas (*Ann. Int. Med.* 28: 1117-1124 [June] 1948) saw no improvement with very large doses of vitamin E in 13 patients suffering from angina pectoris or cardiac failure. Baer, Heine and Gelfond (*Am. J. M. Sc.* 215: 542-547 [May] 1948) failed to note improvement in 22 patients suffering from angina pectoris, cardiac failure or hypertensive heart disease. These patients were given 400 to 600 mg. of vitamin E daily for three to six months, and followed carefully by repeated examinations, electrocardiograms and orthodiagrams.

We believe that so much harm has resulted, and the public has been mulcted of so much money, that we should call attention to the adverse conclusions published concerning the use of vitamin E in heart disease.

Samuel Baer, M.D.
William I. Heine, M.D.
Philadelphia.

NEOSTIGMINE AS ANTIDOTE TO ETAMON®

To the Editor:—The publication of a report by Drs. Lasser, Rosenthal and Loewe of a death following the use of tetraethylammonium chloride (etamon chloride®) in The Journal of January 15, page 153, makes it seem advisable to call attention to the means available for controlling the effects of this drug with neostigmine (prostigmine®). It happened that such interruption of the effects of etamon® by neostigmine was mentioned in the report of the Council on Pharmacy and Chemistry which followed immediately the case report referred to above (Grimson, K. S.; Hendrix, J. P., and Reardon, M. J.: J. A. M. A. 139: 154 [Jan. 15] 1949).

Tetraethylammonium chloride now is in widespread use, and it is to be expected that occasional severe reactions in the form of vascular collapse, as previously reported, will occur. This drug blocks the transmission of nerve impulses through autonomic ganglions, and among other effects, loss of vasomotor tone results. The blockade presumably is brought about by interfering with the action of acetylcholine, which is believed to be the chemical mediator for the transmission of such impulses through the ganglions. Tetraethylammonium chloride resembles curare in its action except that the effects of curare are chiefly on the transmission of nerve impulses to striated muscle, while those of tetraethylammonium chloride in usual dosage are principally on autonomic ganglions. The antagonism of the effects of curare by neostigmine is well known.

In the course of animal experiments with tetraethylammonium chloride it was noted that the ganglionic blockade could be relieved with neostigmine. Observations on patients also indicated that the major effects of the drug were cancelled promptly by 0.5 to 1.0 mg. of neostigmine intravenously (Reardon, M. J.; Marzoni, F. A., and Hendrix, J. P.: *Federation Proc.* 6: 364, 1947). A more detailed report is in preparation.

We fortunately have not had occasion to deal with severe vascular collapse from tetraethylammonium chloride and therefore have not given neostigmine under such circumstances. However, it was used effectively in several cases by Page and co-workers (*Am. J. M. Sc.* 213: 572 [May] 1947). Mention of the antidotal effects of neostigmine is made in the manufacturer's circular which accompanies vials of etamon® solution.

Some disagreeable effects of neostigmine may be experienced, such as intestinal cramps, but these may be controlled readily with atropine.

Epinephrine usually is recommended for hypotension following tetraethylammonium chloride, but neostigmine is a more complete and more physiologic antidote. In addition, epinephrine produces tachycardia and the patient is sensitized to its effects by the action of tetraethylammonium chloride (Moe, G. K.: J. A. M. A. 137:1115 [July 24] 1948). If dangerous hypotension is encountered after use of tetraethylammonium chloride, it should be treated promptly, lest the shocklike state become irreversible, as apparently occurred in the case mentioned in the first paragraph.

It must be recognized that tetraethylammonium chloride is a potent as well as useful drug, capable of producing profound physiologic effects. Due caution must be exercised in its use, especially intravenously, and it is advisable to have neostigmine at hand when it is so injected.

James P. Hendrix, M.D.
Durham, N. C.

OCCUPATIONAL DERMATITIS, DISEASE OR INJURY?

To the Editor: At the recent meeting of the American Academy of Dermatology and Syphilology, while presiding over the course on occupational dermatology, I was repeatedly told by physicians from Southern and Midwestern states that occupational dermatitis was considered a disease in their states and that a worker suffering from a disease was not compensated.

Industrial commissions throughout the country are apt to reject diseases as being compensable. They must be convinced that the disease arises from an injury occurring out of and in the course of the worker's employment. They readily accept abrasions of the skin with secondary infection, bruises, burns, cuts and lacerated wounds, because these conditions are not classified as diseases, but as injuries.

As the large majority of occupational skin disturbances are the result of the same factors, mechanical, physical and chemical, it behooves the physician and dermatologist to label them as injuries of the skin, and not dignify them by the classification occupational diseases.

For years all authors have startled the country by stating that occupational dermatoses comprise 60 per cent, or more, of the occupational diseases. In Massachusetts in 1939 there were 169 cases of occupational disease reported, of which 130 were cases of dermatitis. If we include injury from chrome, this figure would reach 136. For the year ending June 30, 1948, the Massachusetts Department of Labor and Industries reports a total of 268 cases of occupational disease, with 234 cases of occupational dermatitis. Of course this figure is only a small percentage of industrial dermatoses, for many of them are not reported. In the year ending June 30, 1948, I alone saw more than 234 cases of industrial eruptions, and reported only the few about which I received a form from the Massachusetts Department of Labor and Industries.

In Massachusetts the department may require every physician treating a patient whom he believes to be suffering from any ailment or disease contracted as a result of the nature, circumstances or conditions of the patient's employment to report such information relating thereto as it may require, within such time as it may fix, and it may issue a list of such diseases which shall be regularly reported on by physicians, and may add to or change such list at any time. The department will pay a fee of 50 cents for each such report (Gen. Laws. Ter. Ed., Chapter 149, Sec. 11).

Few physicians comply with this request unless they receive the aforementioned form; hence these statistics are of little value. The ordinary burn or injury to the skin responds readily to treatment, often is not disabling or of short disability, and hence is considered of little importance.

These cases of occupational eruptions of the skin should be considered as mechanical, physical or chemical injuries, and not as diseases.

J. G. Downing, M.D., Boston.

PENICILLIN AND MALARIA

To the Editor: I was surprised at the haste with which Dr. Saunders rushed to your columns in the issue of Oct. 9, 1948, page 449, to comment on the abstract of my paper, entitled "Treatment of Relapsing Malaria with Specific Antimalarial Drugs in Combination with Penicillin," The Journal, Aug. 28, 1948, page 1632. Had he only waited to go over the reprint, which is already posted to him on request, he would have, perhaps, chosen not to write the letter posthaste.

I have already stated in my paper that penicillin has no effect on inoculation malaria as shown by Hindle and others (1945) in the treatment of cases of neurosyphilis by "malaria therapy." Here the malarial bouts are not affected because, as I presume, penicillin has no action on malarial parasites in peripheral blood.

Dr. Saunders mentions patients with relapsing malaria who were given penicillin for other conditions and concludes from the results that "there is evidence to prove that penicillin has no effect on malaria." His conclusion is unwarranted because, according to my thesis, penicillin will act only on the preerythrocytic stage and not on the peripheral stage of the parasites. To control relapses, it is necessary to attack the parasite in preerythrocytic stage by penicillin and that in the peripheral blood by the usual antimalarial drugs.

My further work on the lines of my paper is lending strong support to my hypothesis as judged by the clinical results obtained, and it will be interesting to know the results of the therapy abroad.

P. L. Deshmukh, M.D.,
Sassoon Hospitals, Poona City, Indian Dom.

MIGRAINE

To the Editor: The article on migraine by Marcussen and Wolff, The Journal, January 22, page 198, demonstrates the reluctance of the medical profession to adopt new methods of approach, even for a disease in which our therapy has been notoriously inadequate. No reference is made to allergic management of migraine, the efficacy of which has been thoroughly established for many years.

Most clinicians who have availed themselves of this method agree that complete cessation of symptoms from elimination procedures as well as from desensitization treatment is a common occurrence. In my own experience, I rarely fail to obtain conclusive skin reactions from intradermal skin testing in true migraine. Many patients with seasonal migraine respond to hyposensitization therapy with pollen and fungous extracts as promptly as do hay fever patients. Such medications as intravenously administered aminophylline, as well as antihistaminics administered orally or intravenously, compare favorably with ergotamine tartrate in relieving migraine. The "Sunday headache" mentioned by the authors parallels our experience with the "Sunday asthma" or "Sunday hives" from sensitivity to food or beverages consumed on Saturday night or from change of the patient's surroundings over the weekend.

In view of the somewhat discouraging outlook suggested by their paper on nonallergic management, some reference to this different approach should have been made. Moreover, there is always the great danger of treating a disease on a psychosomatic basis because we are unable to understand its mechanism.

George L. Waldbott, M.D., Detroit.

Council on Medical Education and Hospitals

NEW HOSPITALS REGISTERED

The following hospitals were registered by the Council on Medical Education and Hospitals of the American Medical Association at its meeting in Chicago, Feb. 8, 1949:

Pineview Manor for Handicapped Infants and Children	Montgomery Ala.
Maricopa County Hospital	Phoenix, Ariz.
Fincher Clinic and Hospital	El Dorado, Ark.
City Hospital	Siloam Springs, Ark.
Southwest Memorial Hospital	Cortez, Colo.
Franklin County Hospital	Apalachicola, Fla.
Sugarland Hospital	Clewiston, Fla.
Charlotte Hospital	Punta Gorda, Fla.
Palmetto Medical Clinic-Hospital	Wauchula, Fla.
Veterans Admin. Hospital	Dublin, Ga.
Cole Hospital	Champaign, Ill.
Dr. *J. A.* Phillips Hospital	Minden, La.
International Falls Memorial Hosp.	International Falls, Minn.
Natchez General Hospital	Natchez, Miss.
Hart Clinic-Hospital	Salem, Mo.
Maynard Municipal Hospital	Red Cloud, Neb.
Brunswick General Hospital	Amityville, N. Y.
Crippled Children's Guild Hospital	Buffalo, N. Y.
Chowan Hospital	Edenton, N. C.
Lorenzen Memorial Hospital	Elgin, N. Dak.
Memorial Hospital	Hazen, N. Dak.
Shadyside Hospital	North Canton, Ohio
Grande Ronde Hospital	La Grande, Ore.
Henderson County Memorial Hospital	Athens, Texas
Oak Ridge Sanitarium	Austin, Texas
San Jacinto Memorial Hospital	Baytown, Texas
Palms Nursing Home	Beaumont, Texas
Allen Hospital	Burnet, Texas
Seyler Clinic and Hospital	Commerce, Texas
Ghormley Clinic-Hospital	Corpus Christi, Texas
Hamilton Clinic and Hospital	Hamilton, Texas
Medical Arts Hospital	Harlingen, Texas
Clay County Memorial Hospital	Henrietta, Texas
Medina Hospital	Hondo, Texas
Livingston Hospital	Livingston, Texas
Overton Memorial Hospital	Overton, Texas
Hunter-Hunter and Kay Clinic-Hospital	Palestine, Texas
Rising Star Hospital	Rising Star, Texas

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* Various Centers. June 20-22, Sept. 12-14. *Part II.* April 25-26. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology, Inc. *Written.* Various Centers. July 15: Final date for filing application is April 15. *Oral.* April 10-14 and Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

American Board of Dermatology and Syphilology: *Oral.* New York City, April 1-3. Sec., Dr. George M. Lewis, 66 East 66th Street, New York 21.

American Board of Internal Medicine: *Oral.* New York City, March 23-25. Philadelphia, June 1-3. *Written.* Oct. 17. Final date for filing application is May 1. Asst. Sec.-Treas., Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

American Board of Neurological Surgery: *Oral.* Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

American Board of Obstetrics and Gynecology, Inc.: *Oral.* Chicago, May 8-14. Final date for filing application is April 1. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

American Board of Ophthalmology: *Oral.* San Francisco, March 21-24; New York, June 11-15; St. Louis, Oct. 15-19; Boston Dec. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

American Board of Orthopaedic Surgery. *Part I.* New York City, April *22-23*; Atlanta, Ga., April *29-30*; Indianapolis, May *6-7* and Denver, May 13-14. *Part II.* New York City, Jan. 1950. Final date for filing application for Part II is Aug. 15. Address: Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14, Calif.

American Board of Otolaryngology: New York, May 11-14; Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

American Board of Pathology: Boston, April 12-13. Final date for filing application is March 15. Sec., Dr. Robert A. Moore, 507 S. Euclid Ave., St. Louis 10, Mo.

American Board of Pediatrics: *Oral.* Baltimore, May 7-9. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Rd., Rosemont, Pa.

American Board of Physical Medicine: Atlantic City, June 4-5. Final date for filing application is March 15. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

American Board of Plastic Surgery: Examinations are given in June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

American Board of Psychiatry and Neurology, Inc. December, New York City. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Radiology. Atlantic City, June 2-4. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery. *Written.* Various Centers, March and October. *Final date for filing application for October examination* is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

American Board of Urology: Feb. 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

Arkansas: * Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 9-10. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

California: *Examination.* San Francisco, June 20-23. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

Colorado: * *Endorsement,* Denver., April 5. *Written,* Denver, June 20-22. Sec., Dr. W. W. King, 831 Republic Bldg., Denver 2.

Delaware: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

District of Columbia: * *Reciprocity,* Washington, March 14. *Written,* Washington, May 9-10. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., Washington.

Florida: * *Examination,* Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

Georgia: *Examination.* June, Atlanta and Augusta. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Guam: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam, % F.P.O. San Francisco, Calif

Hawaii: * *Examination.* Honolulu, July 11-14. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

Idaho: Boise, July 11-13. Sec., Miss Estella S. Mulliner, Bureau of Occupational Licenses, 355 State House, Boise.

Illinois: Chicago, April 12-14. Supt. of Registration, Mr. Fred W. Ruegg, Capitol Bldg., Springfield.

Indiana: *Examination.* Indianapolis, June 21-23. Sec. Board of Medical Registration and Examination. Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

Iowa: * *Examination,* Iowa City, June 13-15. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

Kansas: Kansas City, June 1-2. Sec., J. F. Hassig, 905 North 7th St., Kansas City, Kans.

Kentucky: *Examination.* Louisville, June 15-17. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville 2.

Maryland: *Examination.* Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 14-15. Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

Minnesota: * Minneapolis, April 19-21. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: Jackson, June 21-22. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

Missouri: *Examination.* St. Louis, May 30-31 and June 8-10. Exec. Sec., Mr. John A. Hailey, Box 4, Jefferson City.

Montana: Helena, April 4-6. Sec., Dr. O. G. Klein, First National Bank Building, Helena.

Nebraska: * *Examination.* Omaha, June. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

Nevada: Carson City, May 2. Sec., Dr. G. H. Ross, 112 N. Curry Street, Carson City.

New Jersey: *Examination.* Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

New Mexico: * Santa Fe, April 11-12. Sec., Dr. V. E. Berchtold, 141 Palace Ave., Santa Fe.

New York: Albany, Buffalo, New York and Syracue, June 28-July 1, Sec., Dr. Jacob L. Lochner, 23 South Pearl St., Albany.

North Carolina: *Endorsement.* Pinehurst, May 9. *Examination.* Raleigh, June 23-25. Sec., Dr. Ivan Procter, 226 Hillsboro St., Raleigh.

Ohio: *Endorsement.* Columbus, April 5. *Written.* Columbus, June. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Oregon: * *Endorsement.* Portland, April 29-30. *Examination.* Portland, July. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

Pennsylvania: *Examination.* Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.

Rhode Island: * *Examination.* Providence, April 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Carolina: *Examination.* Columbia, June 27-29. *Endorsement.* Columbia, March 7, April 4, May 2, June 27-28, Aug. 1, Sept. 5 and Oct. 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

South Dakota: * *Examination.* Pierre, July 19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

Tennessee: * *Examination.* Memphis, March 23-24. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

Texas: *Examination.* Austin, June 16-18. Sec., Dr. M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2.

Utah: *Examination.* Salt Lake City, July. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

Virginia: *Examination.* Richmond, June 17-18. *Reciprocity.* Richmond. June 16. Dr. K. D Graves, 631 First St., S.W., Roanoke.

Washington: * Seattle, July. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

West Virginia: Charleston, April 7-9. Sec., Dr. N. H. Dyer, State Capitol, Charleston 5.

Wisconsin: * *Examination.* Milwaukee, June 28-30. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

Wyoming: Cheyenne, June 6. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

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* Basic Science Certificate required

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA: *Examination.* Tucson, March 15. Sec., Dr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

ARKANSAS: *Examination.* Little Rock, May 3. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.

COLORADO: *Examination.* Denver, June 1-2. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

DISTRICT OF COLUMBIA: *Examination.* Washington, April 18-19. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., East, Washington.

FLORIDA: *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

IOWA: *Examination.* Des Moines, April 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination.* Detroit and Ann Arbor, May 13-14. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

MINNESOTA: *Examination.* April 4, June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

NEW MEXICO: *Examination.* Santa Fe, March 20. Sec., Miss Marguerite Kilkenny, 110 W. Houghton St., Santa Fe.

OKLAHOMA: April 15. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: Portland, June 18, Sept. 3 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

SOUTH DAKOTA: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St., Yankton.

TENNESSEE: Memphis, March 21-22 and July 8-9. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

WISCONSIN: Madison, April 2.. Milwaukee, June 4. Sec., Prof. W. H. Barber, Ripon College, Ripon.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Revocation of License Following Release From Probation.—The plaintiff filed a petition for a writ of mandate to compel the defendant board of medical examiners to set aside its order suspending him from practicing medicine in California. From a judgment denying the petition, the plaintiff appealed to the district court of appeals, second district, division 2, California.

The plaintiff was granted a license to practice medicine and surgery in California in 1938. In 1947, following a plea of guilty, he was convicted of a violation of the state health and safety code prohibiting a person from purchasing for or administering or dispensing a narcotic to an addict except under certain circumstances. After completing one half of the probationary period fixed by the court the plaintiff filed a motion, in accordance with the provisions of the penal code, to terminate his probation and dismiss the accusation against him. This motion was granted. The defendant board, however, on March 15, 1948, after receiving a certified copy of the court order, concluded that the order dismissing the information did not "remove or wipe out" the conviction suffered by the plaintiff. It then found that the plaintiff had been convicted of "an offense involving moral turpitude" and by reason of his conviction was "guilty of unprofessional conduct" and therefore ordered the plaintiff's suspension.

It was contended by the plaintiff that inasmuch as the Board had elected to base its decision solely on the plaintiff's prior conviction its action in suspending his license was an improper imposition of a penalty after he had been "released from all penalties and disabilities resulting from the offense." The penal code under which the court terminated the plaintiff's probation provided that after such a termination the defendant shall "be released from all penalties and disabilities resulting from the offense or crime of which he has been convicted." On the basis of the provisions of this section, the language of which in the court's opinion was plain and unequivocal, the district court of appeals held that a discharged probationer was by virtue of such section "released from all penalties and disabilities resulting from the offense or crime of which he has been convicted" and that the medical board did not have jurisdiction, after the plaintiff's discharge, to penalize him because of his conviction. The judgment of the trial court denying the plaintiff's petition for a writ of mandate was therefore reversed.—*Meyer v. Board of Medical Examiners 200 P. (2d) 128 (California 1948).*

Medical Motion Pictures

FILM REVIEWS

Management of the Failing Heart. 16 mm., color, sound, 1,300 feet (1 reel), showing time forty minutes. Prepared in 1948 by the Department of Pharmacology, Cornell University Medical College, New York. Produced by Joseph P. Hackel, New York, through a grant for Postgraduate Instruction by Varick Pharmacal Company, Inc., Division of E. Fougera & Company, Inc., New York. Procurable on loan from The Medical Film Guild, 167 West Fifty-Seventh Street, New York 19.

This motion picture describes the treatment of congestive heart failure used at Cornell University. The first part of the film deals with physiology, illustrating basic principles. Animated charts and diagrams are utilized to depict congestion in the pulmonary and peripheral circulation. A case of paroxysmal nocturnal dyspnea shown gives an active but not professionally convincing portrayal of the condition.

Unfortunately, the statement "Digitalis Nativelle is the drug of choice for cardiac decompensation" is of course, untrue, and because of it the film is definitely labeled as a commercial production. The reference to varying degrees of decompensation, or some conditions in which digitalis is notoriously dangerous—for example, in greatly enlarged hearts, large cardiac infarcts with slight decompensation and possibly in high grade heart block with heart rates in the middle twenties—is omitted. It would have been appropriate to mention the hazards of overdigitalization at the same time that the dosage was compared with that of ordinary digitalis and also to have mentioned that nausea cannot be used as an early sign. It is also unfortunate that the single dose method of digitalization is recommended, since only rarely is it necessary; the divided dose method is recognized by most cardiologists.

The common misconception of overrestriction of water is handled poorly, since the adequate amount of fluids is not given; however, the subject of salt-free diet and the physiology are well illustrated.

The film is on a medical student level, but could prove beneficial to physicians who are not familiar with the current conceptions of the management of disturbed water balance causing edema.

The photography is excellent. The animation and narration are satisfactory. The film is well organized.

The Epidemiology of Murine Typhus. 16 mm., black and white, sound, 665 feet (1 reel), showing time eighteen minutes. Produced in 1948 by and procurable on loan from United States Public Health Service, Communicable Disease Center, 605 Volunteer Building, Atlanta 3.

This motion picture is the first of a series on epidemiology of infectious diseases. It depicts the three elements of murine typhus epidemiology, namely, the animal reservoir (rats), the vector (rat fleas) and man. Infectious rats in their common environments are shown. A case of typhus due to infectious rats is shown together with suggestions for management of the problem.

Human incidence is portrayed by seasonal variation, age, sex and social status distribution. The geographic distribution in the United States is emphasized by animated maps covering five year periods to date. The character of the infection is demonstrated by the rat reservoir, the maintenance of infection and the mode of transmission of the disease to human beings by means of a vector. The relation of the vector to the rat reservoir and to human beings, as well as the effect of seasonal changes on its activity, is described.

The doctor's responsibility in the control of the disease includes clinical diagnosis, confirmation by serologic data and prompt reporting to the local Health Agency. The epidemiologist investigates the case, analyzes the data and institutes effective control measures, such as DDT dusting, rat poisoning and ratproofing buildings.

This is an excellent teaching film for clinicians, public health workers and medical students. Since the film is scientifically accurate and is done in a simple manner, it is also suitable for classes in nursing education.

The photography, drawings and charts are excellent. From a production point of view, the film is well done.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

18:671-756 (Sept.) 1948

Histopathologic Effects of Nitrogen Mustard Therapy upon Normal and Neoplastic Hematopoietic Tissues. M. Block, C. L. Spurr, L. O. Jacobsen and T. R. Smith.—p. 671.
Interpretation of Rh Antibodies. I. Davidsohn and K. Stern.—p. 690.
*Massive Necrosis of Liver Following Exchange Transfusion for Erythroblastosis Fetalis. P. Rosenblatt.—p. 700.
Significance of Hr Sensitization in Rh Antibody Determinations. R. T. Fisk and A. F. Brown.—p. 716.

Necrosis of Liver Following Exchange Transfusion for Erythroblastosis Fetalis.—In exchange or substitution transfusion for erythroblastosis fetalis the blood of an erythroblastotic infant is drained and simultaneously replaced by citrated compatible donor's blood. The total amount of blood used varies from 500 to 1,000 cc. By this procedure, and sometimes by the additional help of heparin as an anticoagulant, the operation has been speeded so that a 90 per cent exchange of blood may be effected in about ninety minutes. Rosenblatt reports the necropsy findings in 3 infants who died after such exchange transfusions. The lesions were strikingly different from those ordinarily seen in erythroblastosis fetalis. The diagnosis had been made antenatally by means of serologic tests, the pregnancies were terminated by cesarean section before term and the babies were immediately given transfusions by the exchange or substitution technic. The infants lived from one to five days; at necropsy, all showed massive liver necrosis, and 2 of the infants also showed focal necrotic lesions in the adrenals. It is considered that a combination of the following factors may have been responsible for these untoward findings: (1) the presence of erythroblastosis; (2) the administration of excessive amounts of sodium citrate and/or calcium gluconate in the transfused blood, and (3) excessive speed of transfusion. While the exchange transfusion may be a valuable adjunct in the treatment of erythroblastosis fetalis, in view of the described lesions, it must be considered an unsafe procedure as given at the present time. The use of heparinized blood, rather than citrated blood, is suggested. It is also suggested that the rate of effecting the exchange transfusion be slowed.

American J. Digestive Diseases, Fort Wayne, Ind.

15:359-396 (Nov.) 1948

*Pancreas Function Tests. H. L. Popper and H. Necheles.—p. 359.
Critique on Sequelae of Viral Hepatitis. I. B. Brick.—p. 364.
Present Fundamentals of Some Liver Function Tests. C. A. A. Schrumpf.—p. 367.
Case Reports from Soper-Joslyn Clinic. H. W. Soper and H. L. Joslyn.—p. 373.
Acute Coronary Thrombosis Occurring in Case of Perforating Lesser Curvature Ulcer, Undergoing Malignant Changes. E. M. Sachs.—p. 375.
Perforation of Aorta—Complication of Carcinoma of Esophagus. M. C. F. Lindert and D. Winnik.—p. 378.
Obesity: Psychiatric Plus Dietary Approach to Its Treatment. Esther Tuttle.—p. 381.

Tests of Pancreatic Function. — Popper and Necheles show that the older tests of pancreatic function were based on the complete absence of pancreatic juice in the intestinal tract or on vague indirect determinations. These tests, except the stool test, are not in use any longer. The tests which are in use nowadays are: (1) examination of the stools for excessive elimination of undigested fat and undigested muscle fibers which, with certain reservations, are suggestive of pancreatic deficiency; (2) determination of serum amylase and lipase which are reliable indicators of acute pancreatitis; (3) determination of the fasting blood sugar and of glucose tolerance curves, especially after double glucose administration, which will reveal disorders of the pancreas that involve also the insular tissue; this is of special significance in acute and subacute pancreatitis, possibly in sclerosing pancreatitis and in some forms of carcinoma, and (4) Agren and Lagerlöf's secretin test with simultaneous intubation of stomach and duodenum and with aspiration of most of the pancreatic secretion, the first procedure which gives reliable information about the external secretory function of the pancreas. It is to be hoped that it will come into general use. The authors have developed a pancreatic function test in animal experiments which, by demonstrating an increase of pancreatic enzymes in the blood after moderate stimulation of the pancreas, indicates obstruction to pancreatic secretion or, by revealing the absence of such an increase after vigorous stimulation, shows a secretory deficiency of the pancreas. The clinical usefulness of this test still remains to be proved.

American Journal of Medical Sciences, Philadelphia

216:361-484 (Oct.) 1948

*Chronic Constrictive Pericarditis: Study of 53 Cases. O. Paul, B. Castleman and P. D. White.—p. 361.
*Chronic Constrictive Pericarditis Over Left Heart Chambers and Its Surgical Relief. P. D. White, F. Alexander, E. D. Churchill and R. H. Sweet.—p. 378.
Chyluria: Report of Ten Cases. A. H. Logan Jr., H. L. Smith and T. L. Pool.—p. 389.
Relation of Body Weight and Family History of Hypertensive Disease to Blood Pressure Levels in University Students. Ruth E. Boynton and Ramona L. Todd.—p. 397.
Control of Circulatory Stasis by Electrical Stimulation of Large Muscle Groups. F. L. Apperly and M. Katharine Cary.—p. 403.
Anthrax: 36 Human Cases of External Type Treated Successfully with Penicillin. A. C. LaBoccetta.—p. 407.
Epidemic of Tularemia Transmitted by Insects in Settlements of Deportation, Asino and Jaja, Siberia, Soviet Russia: Report of 121 Cases. G. B. J. Glass.—p. 411.
Principles in Management of Chronic Non-Specific Ulcerative Colitis. T. G. Miller and T. E. Machella.—p. 425.
Heating of Human Tissues by Micro Wave Radiation. S. M. Horvath, Ruth N. Miller and B. K. Hutt.—p. 430.
Clinical Evaluation of Phenindamine (2-Methyl-9-Phenyl-2,3,4,9-Tetrahydro-1-Pyridindene Hydrogen Tartrate) as Antihistaminic Agent. T. H. McGavack, J. Weissberg, Anne Shearman and others.—p. 437.
Glucose Tolerance: II. Evaluation of Glucose Tolerance in Liver Disease and Comparison of Relative Value of Three Types of Tolerance Tests. J. Moyer and C. Womack.—p. 446.
Visceral Manifestations of Scleroderma: Review of Recent Literature. H. Beerman.—p. 458.
Psychosomatic Approach to Vasomotor Rhinitis. M. H. Hollender.—p. 476.

Chronic Constrictive Pericarditis.—Paul and his coworkers report 53 patients, 36 men and 17 women, with chronic constrictive pericarditis. Thirty-seven (70 per cent) of these patients were between the ages of 10 and 40 years. Shortness of breath on effort was the commonest symptom, followed by swelling of the ankles and legs, abdominal swelling and abdominal discomfort. The commonest physical observations were enlargement of the liver, prominence of the veins of the neck, ascites, peripheral edema and signs of fluid and/or pleural thickening at the lung bases. Cardiac enlargement was revealed on roentgenologic examination in 29 patients, and cardiac pulsations were observed on fluoroscopy to be diminished in 32 of 40 patients. Chest films disclosed evidence of unilateral or bilateral hydrothorax in 28 patients. Calcification of the pericardium was observed in 29 patients. Electrocardiograms showed auricular flutter or fibrillation in 20 patients, low voltage in 17 and abnormal T waves in the limb leads in 45. Surgical exploration with pericardiolysis and partial pericardiectomy was performed on 42 of this group. Results in 25 have been satisfactory. Sixteen patients died, 6 as a result of the operative procedure itself, 5 from complicating diseases and 4 from the effect of their underlying disease; in 1 patient the cause of death is not known. Necropsies revealed an abnormal liver in all 16. Seven of the 11 patients not operated on were too ill for surgery and died while receiving medical treatment. Causation was entirely obscure in 30 cases despite availability of sections of the pericardium for microscopic study in 46 of the 53 patients. Tuberculous involvement of the pericardium was proved in 9. Six had a history of acute pericarditis of unknown origin, and in 3 others the history was suggestive of an episode of acute pericarditis in the past.

Constrictive Pericarditis Over Left Heart Chambers.—White and his co-workers report 3 young men with chronic constrictive pericarditis involving preponderantly the left heart chambers. The first patient died from complications of peripheral arterial embolism after two unsuccessful pericardial resections carried out by anterior approach and an omentopexy. The other 2 patients were greatly benefited as a result of a transthoracic approach allowing free exposure of the side and back of the heart. The pericardium was removed from the left auricle and left ventricle in these patients. In the first of these 2 patients two previous operations through the usual anterior approach had been unsuccessful. In all 3 patients diagnosis was suggested by the clinical evidence of accentuation of the pulmonary second sound, cardiac enlargement involving the right ventricle and a shift of the electrocardiographic axis deviation to the right, with a persistence of chronic congestion. Measurement of the pulmonary blood pressure by cardiac catheterization has been of considerable aid in localization of the site of the constriction in the last 2 cases, confirming by its marked elevation the constriction of the left heart chambers, which has acted like mitral stenosis on the pulmonary circulation and right side of the heart.

Penicillin in Anthrax.—LaBoccetta treated 36 patients, 21 men and 15 women, with uncomplicated cutaneous anthrax, with sodium penicillin solution. Except for the first 3 patients, who received penicillin intravenously, the drug was administered intramuscularly. The majority of the patients in this group were given between 100,000 to 200,000 units in a twenty-four hour period at three-hourly intervals. In many patients the lesions continued to spread and the edema increased for twenty-four to thirty-six hours after treatment was begun. Penicillin apparently has no direct or immediate effect on the tissue-damaging factor of cutaneous anthrax. Bacteriologic confirmation of the diagnosis was obtained in 30 patients. Nine of these became bacteriologically negative twenty-four hours after treatment was instituted. Nine other patients became negative after forty-eight hours, and an equal number after seventy-two hours of penicillin treatment. In most cases the lesions were regressing after the smears and cultures became negative on two successive days, at which time treatment was discontinued. There were no untoward reactions to penicillin to warrant cessation of its administration. Penicillin by intramuscular route may be used safely and successfully in the treatment of cutaneous anthrax.

American Journal of Ophthalmology, Chicago

31:1193-1363 (Oct.) 1948

Provocative Tests in Diagnosis of Glaucomas. H. S. Sugar.—p. 1193.
Pressor Test for Glaucoma. G. T. Stine.—p. 1203.
Use of Bacitracin in Ocular Infections: Part II. Bacitracin Therapy of Experimental and Clinical Ocular Infections. J. G. Bellows and C. J. Farmer.—p. 1211.
Operative Treatment of Vertical Tropias. B. F. Payne.—p. 1217.
Diffuse Malignant Melanoma of Iris: Report of 2 Cases. S. Richardson.—p. 1223.
Elliot Trephining Operation for Glaucoma: Procedure to Make This Operation Less Difficult and More Effective. R. E. Meek.—p. 1232.
Psychosomatic Interrelationships in Ophthalmology. D. O. Harrington.—p. 1241.
Influence of Torsional Movements on Axis of Astigmatism. S. Van Wien.—p. 1251.
Treatment of Delayed Postoperative Formation of Anterior Chamber. V. A. Byrnes.—p. 1261.
*Use of Immune Globulin in Treatment of Uveitis. B. Kronenberg.—p. 1271.
New Types of Ocular Diseases. A. Fuchs.—p. 1273.
Osteoma Involving the Orbit. F. W. Newell.—p. 1281.
Antitrachoma Campaign in Jewish Schools of Jerusalem. B. Mirenburg.—p. 1289.
Friedländer's Bacillus Infection Following Perforating Wound of Orbit: Report of Case Treated with Streptomycin. W. J. Crawford.—p. 1293.
Analysis of Ocular Motor Anomalies. W. C. Owens.—p. 1297.

Use of Immune Globulin in Uveitis.—According to Kronenberg clinical interest in gamma globulin lies in the fact that many of the antibodies elaborated by the defense mechanisms of the body are concentrated in this fraction. The theory on which the author instituted the injections of immune globulin is based on the fact that the organism requires antibodies to combat infection. In the treatment of uveitis, the function of foreign proteins is to stimulate the production of antibodies within the organism itself. It seemed logical, therefore, that the patient would obtain greater help in combating the infection if antibodies were supplied directly by injections. For this reason, the author used injections of concentrated immune globulin containing both bacterial and virus antibodies. Encouraging results have been obtained in the treatment of 6 cases of various forms of uveitis by injections of massive doses of immune globulin in conjunction with the use of foreign protein. Three of these cases are reported.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

60:443-586 (Oct.) 1948

Role of Radiology Today, Its Responsibility and Its Import on Our Life. L. Reynolds.—p. 443.
*Traumatic Bronchial Rupture with Occlusion. P. J. Hodes, J. Johnson and J. P. Atkins.—p. 448.
*Pulmonary Embolism without Infarction. R. Shapiro and L. G. Rigler.—p. 460.
Benign Pedunculated Tumors of Esophagus. R. C. Beeler, J. N. Collins and M. F. Hall.—p. 466.
*Nonspecific Enterocolitis. E. S. Olsan and M. L. Sussman.—p. 471.
Report of Case of Anomalous Lobe of Liver. N. M. Hardisty, E. A. Kearney and F. P. Brooks.—p. 486.
Legg-Perthes' Disease: Syndrome of Many Etiologies? With Clinical and Roentgenographic Findings in Case of Gaucher's Disease. S. Z. *Draznin and K. Singer.—p. 490.*
Traumatic Instability of Ankle Joint. O. C. Kestler.—p. 498.
Kidney Studies During Cholecystography with Priodax. R. P. Barden.—p. 505.
Heterotopic Ossification in Area of Metastasis from Rectal Carcinoma. H. R. Senturia, S. E. Schechter and B. Hulbert.—p. 507.
Irradiation in Cancer of Tongue. Charlotte P. Donlan.—p. 511.
Precision Dosage in Interstitial Irradiation of Cancer of Cervix Uteri. J. A. Corscaden, S. B. Gusberg and Charlotte P. Donlan.—p. 522.
Relation of Transitional Cell Buds, Golgi Apparatus and Mitochondria to Carcinoma of Bladder. A. E. Bothe and D. S. Cristol.—p. 535.

Traumatic Bronchial Rupture with Occlusion.—According to Hodes and his co-workers bronchial tears are usually due to crushing chest injuries, and are often fatal. When patients survive this injury, complete bronchial occlusion and pulmonary collapse may develop. A patient who sustained a torn bronchus with subsequent pulmonary collapse was recently treated in the Hospital of the University of Pennsylvania. The authors describe their observations on this patient. Literature contains reports on 32 patients. Of these, 10 survived the immediate effect of their injury and experienced bronchial occlusion. In every instance, the bronchial defect lay immediately adjacent to or within a few centimeters of the bifurcation of the trachea. When chest injuries cause tears in the main bronchi close to the tracheal bifurcation, the patient usually reveals shock, dyspnea, anoxia, interstitial emphysema and cough. Routine roentgenograms of the chest immediately after injury may reveal fractured ribs, interstitial emphysema, pneumothorax, pulmonary compression and mediastinal shift. Later, when bronchial occlusion is complete, the classical roentgen manifestations of pulmonary collapse develop. Bronchograms reveal a cup-shaped blind pouch at the site of the occlusion. Substernal distress and dyspnea occur commonly in patients with post-traumatic bronchial occlusion.

Pulmonary Embolism Without Infarction.—Shapiro and Rigler direct attention to the fact that pulmonary embolism may occur without infarction owing to the double circulation of the lungs through the bronchial and pulmonary vessels. The former are concerned with the nutrition of the lungs, while the latter are actively engaged in the respiratory exchange of gases. There are abundant anastomoses between the two. Many roentgenologists still associate pulmonary embolism with an area of increased density in the roentgenogram. The authors present 3 cases of pulmonary embolism without infarction which were confirmed at necropsy. They stress that in pulmonary embolism without infarction the characteristic roentgen findings are increased radiability and ischemia of the involved pulmonary segment. Abrupt termination of the embolic pulmonary artery is also frequently demonstrable. This contrasts strikingly with the usual area of increased density on the roentgenogram found in cases of embolism with infarction.

Nonspecific Enterocolitis.—Olsan and Sussman observed at necropsy a number of cases of enteritis that presented unusual features. They present 1 case of apparent chronic granulomatous jejunoileitis which at postmortem examination five years later showed no evidence of this disease. There was, however, enterocolitis of undetermined nature. The lesion in the large intestine was classified as ulcerative colitis. Chronic granulomatous disease of the small intestine until now has been considered to be characterized by stenosis. This case indicates the possibility that resolution without stenosis might take place. The alternative explanation is a disease, possibly a variety of ulcerative colitis, in which the lesion of the small intestine dominated the roentgen findings, passing through a phase of thickening and rigidity to a normal wall. Two cases of granulomatous jejunoileitis and one of ulcerative colitis with amyloidosis are reported. It is suggested that amyloidosis in chronic enteritis is more frequent than has been suspected and might account, in part at least, for the clinical and roentgenographic findings in occasional cases of granulomatous disease. A review of the literature also suggests the possibility that some cases considered primary amyloidosis might be instances of amyloidosis secondary to chronic enteritis. Five cases are reported of extensive involvement of jejunum and ileum in ulcerative colitis. Thus the roentgen appearance of stenosis in the small intestine does not necessarily indicate granulomatous disease. Even in the absence of disease of the terminal ileum, ulcerative colitis cannot be excluded despite the lack of distinct roentgen evidence to indicate its presence in the large intestine. Presumably the small intestinal deformity is due to edema and infiltration without significant fibrosis. These observations indicate that it is difficult to determine the type of enterocolitis from the roentgen appearance alone, and that even with postmortem data the pathogenesis may not be ascertainable.

Annals of Surgery, Philadelphia

128:609-880 (Oct.) 1948

Recurrent Acute Pancreatitis: Observations on Etiology and Surgical Treatment. H. Doubilet and J. H. Mulholland.—p. 609.
Observations on Some Metabolic Changes After Total Pancreatoduodenectomy. L. S. Fallis and D. E. Szilagyi.—p. 639.
Colorimetric Determination of Amylase. C. Huggins and P. S. Russell.—p. 668.
Surgical Experiences with Extramedullary Tumors of Spinal Cord. F. C. Grant.—p. 679.
Control of Anoxemia During Surgical Anesthesia with Aid of Oxyhemograph. R. D. McClure, Vivian G. Behrmann and F. W. Hartman.—p. 685.
Penicillin Therapy with Prolonged Interval Dosage Schedules. W. A. Altemeier.—p. 708.
*Results of Systemic Administration of Antibiotic, Bacitracin, in Surgical Infections: Preliminary Report. F. L. Meleney, W. A. Altemeier, A. B. Longacre and others.—p. 714.
Paralysis of Deglutition: Surgical Correction. H. C. Naffziger, C. Davis and H. G. Bell.—p. 732.
Late Complications Following Cranioplasty with Alloplastic Plates. J. C. White.—p. 743.
Clinical Aspects of Chronic Thyroiditis. H. Patterson and G. Starkey.—p. 756.
*Results of Specifically Co-Ordinated Plan of Medical and Surgical Treatment of Essential Hypertension. L. Davis, H. A. Lindberg and N. V. Treger.—p. 770.
Gangliosympathectomy and Bilateral Hemiadrenalectomy for Severest Grade of Hypertension. H. Neuhof.—p. 787.
Management of Massively Bleeding Peptic Ulcer. J. D. Stewart, S. M. Schaer, W. H. Potter and A. J. Massover.—p. 791.
*Surgical Treatment and Physiopathology of Coarctation of the Aorta. R. J. Bing, J. C. Handelsman, J. A. Campbell and others.—p. 803.
Portacaval Shunt in Surgical Treatment of Portal Hypertension. A. H. Blakemore.—p. 825.
Closure of Defects in Cardiac Septa. G. Murray.—p. 843.
Revascularization of Heart. C. S. Beck.—p. 854.
Factor of Rate of Transfusion with Particular Reference to Intra-Arterial Route. M. R. Porter, E. K. Sanders and J. S. Lockwood.—p. 865.

Systemic Administration of Bacitracin in Surgical Infections.—According to Meleney and his associates, bacitracin is an antibiotic produced by the Tracey strain of Bacillus subtilis. During the past twenty months, purification and standardization have reached a point whcih has permitted the systematic use of bacitracin. Studies are being carried out by different groups. Bacitracin has a wide antibacterial spectrum. It may be used systemically as well as locally in surgical infections. This report presents the results obtained with the systemic administration of bacitracin in 105 cases of surgical infection. For the most part they were cases which had failed to respond to the sulfonamide compounds and to the other antibiotics. There was an over-all favorable response in about 70 per cent of these cases, and in about one fifth of these the results were dramatic. Of particular interest were 3 cases of extensive progressive bacterial synergistic gangrene, in all of which the patients responded within seventy-two hours and recovered with surgical excision. In the three largest groups, namely, cellulitis, deep abscess and infected accidental wound, favorable results were obtained in three fourths of the cases. In the dramatic group, the causative organisms were for the most part in the staphylococcus and streptococcus groups. In the latter classification were found hemolytic, nonhemolytic, microaerophilic and anaerobic streptococci. In a considerable number of staphylococcus strains the authors found resistance to penicillin and susceptibility to bacitracin. In 14 per cent of the cases the results were questionable, and in a slightly higher percentage the results were frankly nil. In most of these cases the causative organisms were resistant to bacitracin. Some of the later preparations of bacitracin made by the deep tank method have shown evidence of nephrotoxicity. When the presently available bacitracin is used systemically, there should be repeated tests of renal function, and treatment should be discontinued if there is any indication of serious damage.

Results of Medical and Surgical Treatment of Essential Hypertension.—Davis and his associates present a classification of patients with essential hypertension and say that for surgical treatment they chose those with the high diastolic type of hypertension, and among these they selected those who had been given an adequate and thorough trial of therapy with the thiocyanates and had proven to be resistant to this drug. That is to say, their diastolic and systolic pressures and their symptoms could not be improved by cyanate blood levels below those which produced toxic symptoms. They found that sympathectomy alone has not been successful in permanently reducing the blood pressure levels in the high diastolic type of hypertension regardless of the extent of the operation. However, in some cases the subjective symptoms have been improved temporarily although the clinical course of the disease has remained unchanged. Sympathectomy has caused patients in this group who have been resistant to thiocyanate therapy preoperatively to become sensitive to the administration of this drug. This result has been confirmed by laboratory experiments on monkeys and dogs. There has been no significant change in the blood pressure levels, or heart size, unless the patients of this group have been given thiocyanates postoperatively. Vasopressor or vasorelaxor tests have not proved to be sufficiently accurate to determine exactly which of the patients with the high diastolic type of hypertension should be operated on. The medical management of patients of this group, particularly with the administration of thiocyanates properly controlled, is good in the early stages of the disease, but sooner or later all become resistant to this drug. The authors believe that those types of hypertension which respond well to medical management will show good results from surgical therapy alone, but the selection of patients for operation should be made, not on blood pressure ranges alone, but on the characteristic symptoms and clinical course of the disease. Until comparison of the results of surgical therapy is made on accepted classifications of the clinical symptoms and course of this disease, confusion in interpretation of the surgical results will exist.

Coarctation of the Aorta.—According to Bing and his co-workers, coarctation of the aorta belongs to the group of congenital cardiovascular malformations in which arteriovenous shunts are absent and in which there is no cyanosis. Diagnosis is not difficult if it is recalled that there is usually hypertension in the upper part of the body and hypotension below. The authors review observations on 23 patients who were operated on for coarctation of the aorta. Thirteen were 20 years of age or above, while 10 were younger. An anastomosis was completed in 21 cases of the 22 in which it was attempted. In 17 cases the stenosis was resected and an anastomosis of the proximal and distal ends of the aorta was performed. In 4 cases in which the proximal segment of the aorta was too short for end to end suture the left subclavian artery was used to by-pass the stenosis. There were 3 deaths. Physiologic investigations disclosed no significant deviation of the cardiac output from normal. Blood flows through the arm, which were elevated before operation, fell following surgery. Blood flow through the leg rose postoperatively. Hypertension in the upper part of the body and hypotension in the legs were observed preoperatively. After operation, these pressures tended to equalize. Analysis of the physiologic data indicated no generalized elevation of peripheral vascular resistance. It is probable, therefore, that the hypertension in coarctation of the aorta is not attributable to a renal pressor mechanism, but is due to the resistance of the stenosis and collaterals.

Archives of Physical Medicine, Chicago

29:*687-740 (Nov.) 1948*

Thermal Gradients During Varying Body Temperatures; with Particular Reference to Changes During Application of External Cold in Patients with Noninfectious Fevers. L. W. Eichna.—p. 687.
Some of the Forces Exerted in Normal Human Gait. I. Rehman, P. R. Patek and Margaret Gregson.—p. 698.
*Studies in Low Backache with Persistent Muscle Spasm. Judith P. Price, Margaret H. Clare and F. H. Ewerhardt.—p. 703.
Conservative Treatment of Scoliosis in Selected Cases. E. M. Smith and C. D. Shields.—p. 709.
Care of Paraplegic Patients from Viewpoint of Internal Medicine. H. I. Sippy.—p. 715.
Role of Physical Medicine in Life History of Amputee. M. Shimberg.—p. 719.

Low Backache with Persistent Muscle Spasm.—Price and her associates studied the patterns of muscular activity in acute and chronic back disorders and the effectiveness of treatment. Patients with acute and chronic pain in the back (resulting from simple muscular strain, joint irritation, arthritis or psychogenic disturbances) were studied through three methods: (1) localization of painful regions by repeated mappings of palpable painful foci; (2) removal of pain, either by treatment of the acute pain or by correction of abnormal patterns of activity; (3) analysis of movement by electromyographic recording of simple positions and movements. It was found that the areas of pain or tenderness migrate from one muscle group to another or from one part of a muscle group to another region of the same group. This shift of pain seems to be associated with the abnormal patterns of muscular activity developed in an attempt to avoid or relieve pain. Electromyographic studies during test movements gave evidence of the relative amounts of activity in various muscle groups in relation to pain as compared with normal subjects. Relief of the abnormal tensions in the muscles by correction of the abnormal patterns of activity may assist greatly in alleviating discomfort and preventing recurrences of pain.

Blood, New York

3:1213-1314 (Nov.) 1948

*Response of Tropical Sprue to Vitamin B_{12}. T. D. Spies and R. M. Suarez.—p. 1213.
*Adult Gaucher's Disease, with Special Reference to Variations in Its Clinical Course and Value of Sternal Puncture as Aid to Its Diagnosis. J. Groen and A. H. Garrer.—p. 1221.
Hereditary Mechanism of Gaucher's Disease. J. Groen.—p. 1238.
Studies Concerning Pathogenesis of Gaucher's Disease. Bertha Ottenstein, G. Schmidt and S. J. Thannhauser.—p. 1250.
Effects of X-Ray on Lymphoid and Hemopoietic Tissues of Albino Mice. G. Brecher, K. M. Endicott, H. Gump and H. P. Brawner.—p. 1259.
Platelet Adhesiveness. M. Weiner, K. Zeltmacher, C. Reich and S. Shapiro.—p. 1275.
Chronic Leg Ulcer in Diseases of Blood. B. R. Gendel.—p. 1283.
Quantitative Method for Determination and Charting of Erythrocyte Hypotonic Fragility. J. Suess, D. Limentani, W. Dameshek and Miriam J. Dolloff.—p. 1290.

Vitamin B_{12} in Tropical Sprue.—Spies and Suarez treated 5 patients with tropical sprue in Puerto Rico by injections of vitamin B_{12}. A single dose of 4 micrograms administered in 1 case produced little or no change. The larger dosage of 10 to 25 micrograms administered in other cases was accompanied by a striking increase in strength and vigor and a decrease in the diarrhea. In no instance was a maximum dose given, and these patients quickly tended to relapse clinically and hematologically. They could be relieved promptly again either by another injection of vitamin B_{12} or by a compound of folic acid. A single injection of approximately 100 micrograms of vitamin B_{12} would probably be needed to produce a full hematologic response. This tentative appraisal would suggest that vitamin B_{12}, per unit of weight, is more effective in treating human disease than any compound that yet has been used.

Gaucher's Disease in Adults.—Groen and Garrer report 9 patients, 4 women between the ages of 21 and 58, and 5 men between the ages of 25 and 47, with Gaucher's disease. Two of these patients were brother and sister, and three others constituted a family consisting of the father and 2 daughters. The patients presented most of the salient features of this rare, often familial disease which is distinguished by the presence of characteristic cells in the spleen, liver, lymph nodes and bone marrow. As a rule the patients do not have any complaints until relatively late, when the spleen and liver have already increased to a considerable size. During the "silent" stage the person is unaware of the condition. In 3 instances in this series the disease was discovered only when the relatives of a known patient were examined. The presence of the Gaucher cells does not necessarily upset the macroscopic structure of the bone; in the later stages the bones usually show generalized or local osteoporosis, but even in the cases of advanced disease the degree of macroscopic affection of the bone is variable, and consequently considerable variations in the clinical picture may be encountered. Repeated attacks of low backache radiating along the sciatic nerve were the first complaint in 2 patients. One patient entered the hospital with a spontaneous fracture of the shaft of the right femur; another presented "arthrosis" of the head of the femur, and bone abscess occurred in 2 patients. The diagnosis suspected on clinical grounds was definitely established by the detection of Gaucher cells in the smear of the sternal marrow. Puncture was carried out in the manubrium. One of the most important advantages of the sternal puncture is the possibility of establishing an early diagnosis in persons in whom the clinical picture is not fully developed. Sternal puncture has all the advantages of ease and safety and none of the drawbacks associated with the splenic or hepatic puncture in these patients with a known tendency to bleed.

Cancer Research, Baltimore

8:193-240 (May) 1948. Partial Index

Phosphorylated Intermediates in Tumor Glycolysis. G. A. LePage.—p. 193.
Localized Changes in Methylcholanthrene-Treated Epidermis. Hsu-mu Liang.—p. 211.
Effect of Saponin on Tissue and Cancer Cells in Vitro. J. Butros.—p. 221.
Influence of Solvents Upon Effectiveness of Carcinogenic Agents. L. A. Strait, M. K. Hrenoff and K. B. DeOme.—p. 231.

Gastroenterology, Baltimore

11:413-574 (Oct.) 1948

*Physiological Aspects of Vagotomy. J. E. Thomas and S. A. Komarov.—p. 413.
Laboratory Procedures in Study of Vagotomy (with Particular Reference to Insulin Test). F. Hollander.—p. 419.
Gastrointestinal Motility Following Vagotomy and Use of Urecholine for Control of Certain Undesirable Phenomena. T. E. Machella and S. H. Lorber.—p. 426.
*Follow-Up of Vagotomy in Duodenal Ulcer. F. D. Moore.—p. 442.
Follow-Up of Vagotomy Plus Gastroenterostomy or Pyloroplasty for Ulcer. E. N. Collins, G. Crile Jr. and J. B. Davis.—p. 453.
Vagotomy Combined with Subtotal Gastrectomy. S. A. Wilkinson and J. C. Sullivan.—p. 457.
*Follow-Up of Gastric Vagotomy Alone in Treatment of Peptic Ulcer. L. R. Dragstedt and E. H. Camp.—p. 460.
Ultimate Results of Vagotomy. J. M. Ruffin.—p. 466.
Enterocolitis as Postoperative Complication and Its Significance. A. Penner and L. J. Druckerman.—p. 478.
Portacaval Anastomosis for Relief of Portal Hypertension. A. H. Blakemore.—p. 488.
Application of Turbidimetric Methods for Estimation of Gamma Globulin and Total Lipid to Study of Patients with Liver Disease. H. G. Kunkel, E. H. Ahrens Jr. and W. J. Eisenmenger.—p. 499.
Effects of Some Synthetic Antispasmodic Agents on Human Gastric and Duodenal Functions. J. R. Higgins, A. M. Schoen and P. K. Knoefel.—p. 508.

Physiologic Aspects of Vagotomy.—Animal experiments carried out by Pavlov and his co-workers and by many other investigators demonstrated that complete vagotomy causes digestive disturbances severe enough to cause death of the animals. These disturbances comprise hypomotility of the stomach and hyposecretion of the stomach and pancreas and possibly the intestine, together with a peculiar hyperirritability of the intestine. These changes are interpreted by Thomas and Komarov as being mainly due to loss of tonic activity of the abdominal vagus. Evidence is reviewed which indicates that transthoracic or transabdominal vagotomy in experimental animals, and presumably in man also, is seldom complete, and it is suggested that the relative harmlessness of this operation as usually performed is due to this fact. Attempt to accomplish more nearly complete vagotomy in human subjects would probably be unwise:

Follow-Up of Vagotomy.—Moore performed vagus resection on 116 patients, 99 of whom had duodenal ulcer and 17 had jejunal ulcer. Follow-up study for a period of five to forty-five months showed that 13 of these patients (11 per cent) have had recurrence. Eight of these patients have had a frank recurrence of ulcer symptoms with the demonstration by roentgen ray of an ulcer crater or the occurrence of a demonstrable ulcer crater in the absence of symptoms. Five patients have had a recurrence of ulcer symptoms without a demonstrable ulcer crater. Of these 13 patients, all but 2 are now well without further treatment other than the simplest of dietary precautions. Abolition of gastric secretory response to insulin-induced hypoglycemia is not a lasting result of vagotomy; it has been observed to re-establish itself two to four years after vagotomy despite a long interval free of symptoms and free of secretory response to hypoglycemia. Resumed responsiveness may take the form of a "delayed" response. Vagus resection is not a cure for duodenal ulcer; it is a physiologic procedure which, by removing the majority of the parasympathetic nerves to the upper part of the gastrointestinal tract, renders the management of patients with duodenal ulcer a simple rather than a complicated problem. One case in a man aged 44 with duodenal ulcer is reported in which the right vagus fibers to the celiac ganglion were left intact but the left vagus entirely sectioned 3 inches (7.6 cm.) above the cardia and all fibers passing to the posterior wall of the stomach sectioned. Diarrhea was not lessened in this instance, although ulcer healing and abolition of the hypoglycemic reflex were produced.

Follow-Up of Gastric Vagotomy.—Dragstedt and Camp carried out section of a segment of the vagus nerves along the lower esophagus without additional gastric surgery on 144 patients, 133 men and 11 women, with intractable duodenal ulcers. In 56 of these the operation was performed by a transthoracic approach and in 88 by a laparotomy with incision of the diaphragm. One death occurred in the former group, but there have been no deaths in the latter series. These patients have been followed up for from one to five and a half years. Forty-five of the 56 patients (80 per cent), and 76 of the 88 patients (86 per cent) secured an excellent result from the operation with objective evidence of healing of the ulcer as determined by gastric fluoroscopy, complete absence of ulcer distress while on an entirely unrestricted diet and without any form of antacid medication, increase in body weight and return to the usual occupation, and with side effects trivial or inconsequential. The majority of the patients with an unsatisfactory result have been entirely relieved by subsequent gastroenterostomy for obstructive symptoms. Failure of the ulcers to heal or recurrence has usually been associated with incomplete vagotomy.

Journal of Investigative Dermatology, Baltimore

11:225-304 (Oct.) 1948

Part Time Versus Full Time Teaching of Dermatology, with Special Reference to Research. S. W. Becker.—p. 231.
Ringworm of Scalp. R. T. Behling and I. J. Markel.—p. 239.
*Contact Dermatitis from Topical Tyrothricin and Associated with Polyvalent Hypersensitivity to Various Antibiotics: Report of Case. L. Goldman, M. D. Feldman and W. A. Altemeier.—p. 243.
Psoriasis and Myocosis Fungoides Occurring in Same Patient, Both Conditions Proved Histologically. J. C. Murphy and H. Montgomery. —p. 245.
*Contact-Type Sensitization to Antibiotic Agents: Study of Reactions to Streptomycin, Penicillin and Tyrothricin. M. Berke and M. E. Obermayer.—p. 253.
Mucolytic Enzyme Systems: II. Inhibition of Hyaluronidase by Serum in Skin Diseases. M. L. Grais and D. Glick.—p. 259.
Experimental Miliaria in Man: I. Production of Sweat Retention Anidrosis and Vesicles by Means of Iontophoresis. W. B. Shelley, P. N. Horvath, F. D. Weidman and D. M. Pillsbury.—p. 275.
Papular Urticaria: Its Response to Treatment with DDT and Role of Insect Bites in Its Etiology. B. Shaffer, M. S. Spencer and H. Blank.—p. 293.
Sarcoidosis. II. Chemical and Functional Studies. R. H. Grekin and A. C. Curtis.—p. 299.

Contact Dermatitis from Topical Tyrothricin.—Goldman and his associates report the case of a woman, aged 43, in whom various treatments had failed to heal an ulcer on the ankle until compresses with solution of tyrothricin were applied. On later recurrence, the ulcer was again treated with solution of tyrothricin and began to heal, but after six weeks of treatment an acute eczematoid dermatitis of the lower leg developed. Penicillin ointment was then used without relief and with perhaps further aggravation of the dermatitis. There were no previous episodes of eczematoid dermatitis, no known fungous disease of the feet and, prior to the application of tyrothricin, no use of any antibiotic. There was also a moderately severe erythematous papulovesicular eruption of the upper extremities. Later the dermatitis subsided and patch tests were done with tyrothricin, penicillin, bacitracin and various other substances and a polyvalent hypersensitivity was detected. The authors are of the opinion that topically tyrothricin is less effective than penicillin or even streptomycin or bacitracin.

Sensitization to Antibiotic Agents. — Berke and Obermayer subjected 51 nurses, who had previously handled streptomycin, to patch tests with streptomycin, penicillin, tyrothricin and procaine hydrochloride. Each subject was questioned concerning recent eczematous eruptions, her length of service in the chest or urologic division and the frequency of handling streptomycin. All 51 nurses had administered penicillin, the majority had had some contact with procaine hydrochloride and a smaller number had administered tyrothricin, which is used as a topical application. Twenty of the 51 nurses gave positive evidence of hypersensitivity to streptomycin, 20 to procaine hydrochloride, 13 to penicillin and 2 to tyrothricin. Fourteen of the 20 who reacted to streptomycin also reacted to procaine hydrochloride and/or penicillin; 13 of this group had a history of previous eczematous dermatitis. It is evident that streptomycin is an important contact type sensitizing agent, but procaine hydrochloride when used concomitantly with streptomycin seems to be significant in the causation of eczematous dermatitis.

Journal of Lab. and Clinical Medicine, St. Louis

***33:**1197-1352* (Oct.) *1948*

Studies on Destruction of Red Blood Cells: VI. Spleen as Source of Substance Causing Agglutination of Red Blood Cells of Certain Patients with Acquired Hemolytic Jaundice by Antihuman Serum Rabbit Serum (Coombs' Serum). P. F. Wagley, S. C. Shen, F. H. Gardner and W. B. Castle.—p. 1197.
Demonstration of Heterophile Antibodies in Cerebrospinal Fluid from Patients with Infectious Mononucleosis. J. K. Silberstein, T. C. Bernstein and Thelma Stern.—p. 1204.
Use of Yeast Phase Antigens in Complement Fixation Test for Histoplasmosis: II. Results with Ground Antigens. Charlotte C. Campbell and S. Saslaw.—p. 1207.
*Antigenic Differences Among Influenza A Viruses, Including Serologic Response of Patients. H. R. Morgan, Mildred W. Barnes and M. Finland.—p. 1212.
Studies on Cardiolipin Antigen: IV. Variations in Sensitivity of Different Lots of Purified Lecithin. R. L. Kahn and Elizabeth B. McDermott.—p. 1220.
Id.: V. Standardization of Antigen for Kahn Test. Elizabeth B. McDermott and R. L. Kahn.—p. 1224.
Procaine Penicillin; Therapeutic Efficiency and Comparative Study of Absorption of Suspensions in Oil and in Oil Plus Aluminum Monostearate and of Aqueous Suspension Containing Sodium Carboxymethylcellulose. J. A. Robinson, H. L. Hirsh, B. Milloff and H. F. Dowling.—p. 1232.
Acquired Resistance of Psittacosis Virus to Sulfadiazine and Effects of Chemical Antagonists on Sulfonamide Activity. O. J. Golub.—p. 1241.
Effect of Nicotinic Acid Amide on Experimental Tuberculosis of White Mice. D. McKenzie, L. Malone, S. Kushner and others.—p. 1249.
Porphobilinogen Tests on Thousand Micellaneous Patients in Search for False Positive Reactions. R. L. Hammond and M. L. Welcker. —p. 1254.
*Hepatic Dysfunction in Infectious Mononucleosis; with Review of Literature. R. E. Peterson.—p. 1258.
Folic Acid Metabolism Studies: III. Intravenous Administration of *Pteroylglutamic Acid and Pteroyltriglutamic Acid. B. S. Schweigert.* —p. 1271.
Studies in Serum Proteins: IV. Clinical Studies Employing Rapid Chemical Fractionation Procedures with Particular Reference to Frequency and Significance of Hypoalbuminemia. W. Q. Wolfson, C. Cohn, E. Calvary and E. M. Thomas.—p. 1276.
*Failure of Antireticular Cytotoxic Serum in Arthritis. D. H. Kling. —p. 1289.
Effect of Succinate in Mescaline Hallucinations. F. W. Schueler. —p. 1297.
Absorption, Distribution, and Renal Excretion of Mandelamine (Methenamine Mandelate). J. V. Scudi and J. F. Rainhard.—p. 1304.

Antigenic Differences Among Influenza A Viruses.—Morgan and his co-workers tested for virus the throat washings of 13 patients during the epidemic of influenza which occurred in Boston in March and April 1947. Strains of influenza were isolated from the throat washings of the 13 patients and a strain also was obtained from the nasal secretions of one of them. These strains were shown to be antigenically distinct from several classic strains of influenza A and from strains of influenza virus isolated in Boston during and shortly after the 1943-1944 epidemic. The strains from both epidemics, however, showed some antigenic relationship to the PR8 strain of influenza A, but not to the Lee strain of influenza B. Evidence was presented which suggested that at least two antigenically distinct strains of influenza virus were active during the 1947 epidemic; one of them closely resembled the FM_1 strain isolated elsewhere during the same season. Antigenic differences were also demonstrated among strains of influenza A isolated in Boston during and after the outbreak of 1943-1944. During the 1947 outbreak, higher titers and greater rises in titer of influenza antibodies were elicited in the serums of patients with the PR8 strain than with the epidemic strains. A strain of virus isolated from a sporadic case of clinical influenza in December 1947 showed no antigenic relationship to any of the influenza viruses included in this study. Antibodies against this strain could not be demonstrated in the serum of the patient from whom it was isolated.

Hepatic Dysfunction in Infectious Mononucleosis.—Peterson studied 40 patients with typical infectious mononucleosis, 21 of whom showed moderate to severe hepatic functional involvement or hepatitis as evidenced by a battery of hepatic function tests. A few of the remaining 19 patients exhibited milder hepatic involvement on the basis of positive reactions to one or two positive tests. It has not been feasible to differentiate the type of hepatic involvement in these patients with infectious mononucleosis and hepatic dysfunction from that in cases of acute epidemic or sporadic hepatitis. One must rely on the clinical picture, especially the presence of pharyngitis, the type of lymphocytic reaction and the titer of the heterophile antibodies. The character of the disturbances in hepatic function in these patients points to the presence of both hepatocellular and cholangiolar liver injury. This evidence, together with the microscopic observations reported in the literature, tends to refute the concept that jaundice in infectious mononucleosis is due to an extrahepatic obstruction of the common bile duct by enlarged lymph nodes.

Antireticular Cytotoxic Serum in Arthritis.—Kling administered antireticular cytotoxic serum to 60 patients with chronic rheumatic disease, 30 of whom had rheumatoid arthritis, 20 had osteoarthritis and 10 had fibrositis. Two schedules were used. One, according to the original directions of Bogomolets, consisted of an injection of 0.5 cc. of antireticular cytotoxic serum followed after an interval of two or three days by 0.1 cc. and concluded with 0.15 cc. after the same interval. The second method of administration employed was that by Strauss and his associates, with injections given twice weekly starting with 0.02 cc. of the serum. The dosage was increased by 0.02 cc. at each subsequent injection to a maximum of 0.2 or 0.25 cc. This dose was repeated up to six weeks, depending on the response of the patient. Injections were given subcutaneously. With both methods the series can be given several times after an interval of at least four weeks. From the results obtained and from a review of the literature it is concluded that there is no indication for antireticular cytotoxic serum in the treatment of osteoarthritis and fibrositis, which are ameliorated as a rule by physical, orthopedic and drug treatment. In rheumatoid arthritis and Strümpell-Marie spondylitis, which are often resistant to treatment, a trial of antireticular cytotoxic serum, on the basis of an occasional significant improvement as in 1 of the authors' cases, may be justified. Important objections to Bogomolets' concept of the extended reticuloendothelial system are as follows: It is not proved that the reticuloendothelial system is depressed in any type of rheumatic disease; the role of the reticuloendothelial system in pathogenesis and treatment has not been definitely established; in the rheumatic disease presented in the author's material and reviewed from the literature the results of antireticular cytotoxic serum have been discouraging. It is doubtful that antireticular cytotoxic serum is a true antireticular serum. Its introduction into general practice, especially in the therapy of rheumatic diseases, should not be encouraged.

J. Neuropathology & Exper. Neurology, Baltimore

7:349-470 (Oct.) 1948

Gliomas of Cerebellopontine Angle. J. W. Kernohan, H. W. Woltman and A. W. Adson.—p. 349.
Neurotoxicity of the 8-Aminoquinolines: I. Lesions in Central Nervous System of Rhesus Monkey Induced by Administration of Plasmocid. Ida G. Schmidt and L. H. Schmidt.—p. 368.
Gargoylism (Lipochondrodystrophy). M. A. Green.—p. 399.
DDT [2,2-Bis (p-Chlorophenyl) 1,1,1-Trichlorethane] Poisoning: Histopathologic Observations on Central Nervous System in So-Treated Monkeys, Dogs, Cats and Rats. J. H. Globus.—p. 418.
Morphology of Pial Blood Vessels and Its Bearing on Formation and Absorption of Cerebrospinal Fluid. G. B. Hassin.—p. 432.
Corticocortical Connections of Cerebral Cortex Lying Within the Arcuate and Lunate Sulci of Monkey (Macaca Mulatta). J. G. Chusid, O. Sugar and J. D. French.—p. 439.
Phosphorus Metabolism in Disseminated Sclerosis. A. Weil and G. B. Bradburne.—p. 447.
Chemical Analysis of Phospholipids of Brain in Disseminated Sclerosis. A. Weil.—p. 453.
The Pyramidal Tract: Study of Sensitivity of Neurons to Trauma in Rat with Comparison of Methods. A. M. Lassek and W. L. Hard. —p. 457.
Modified Myelin Staining Method for Paraffin Sections. B. Rexed. —p. 462.

Journal of Urology, Baltimore

60:541-696 (Oct.) 1948. Partial Index

Aneurysm of Renal Artery: Report of 5 Cases, One Treated by Resection of Aneurysmal Sac Without Sacrificing Kidney. C. P. Mathé. —p. 543.
*Mesoblastic Nephroma in Adults: Clinico-Pathologic Study of Wilms' Tumors and Related Renal Neoplasms. O. S. Culp and F. W. Hartman.—p. 552.
Report of Case of Lower Nephron Nephrosis Treated by Renal Capsulectomy and Peritoneal Lavage, with Recovery: Modification of Method of Peritoneal Lavage. H. L. Weinstock and G. A. Nitshe Jr. p. 577.
Hypolastic Kidney, Bilateral: Case Report. A. P. Graham.—p. 581.
Skin-Tubed Ureterocutaneous Transplantation. G. Schinagel and G. Sewell.—p. 586.
Prepared Pedicled Skin Tubes in Ureterocutaneous Anastomosis: A Suggestion. G. Schinagel.—p. 591.
Bladder in Prostatism: Operation for Excessive Bladder Hypertrophy. E. G. Crabtree and S. R. Muellner.—p. 593.
*Carcinoma of Prostate: Study of Postmortem Findings in One Hundred and Seventy-Six Cases. F. K. Arnheim.—p. 599.
Comparative Follow-Up Study of Therapeutic Value of Bilateral Orchiectomy in Treatment of Carcinoma of Prostate Gland. W. W. Scott and J. A. Benjamin.—p. 604.
Blastomycosis Involving Prostate: Report of Two Cases, One With and One Without Cutaneous Lesions. M. Moore and L. K. Halpern. —p. 612.
Undescended Testes: Cause and Treatment. E. W. Beach.—p. 623.
Orchiopexy: A Critique. L. P. Wershub.—p. 631.
Priapism Due to Metastatic Hypernephroma in Corpora Cavernosa Penis. N. L. Burrell.—p. 636.
New Method of Removal of Calculi From Male Urethra. M. J. Loeb. —p. 640.
Re-Anastomosis of Vas Deferens: Case Report. W. L. Huffman. —p. 643.
Experiences in Diuresis in Urological Surgery. M. Muschat.—p. 645.
Pneumaturia: Case Report and Review of Literature. L. M. Arthur and H. W. Johnson.—p. 659.
Abacterial Pyuria: Possible Relationship to Reiter's Syndrome. R. R. Landes and C. L. Ransom.—p. 666.
*Streptomycin in Treatment of Pyelonephritis, Interstitial Cystitis, Urethritis, and Tuberculosis of Genito-Urinary Tract. R. W. Satterthwaite and T. T. White.—p. 678.

Mesoblastic Nephroma in Adults.—Culp and Hartman point out that embryonal tumors of the renal cortex have been reported with more than fifty different pathologic diagnoses. The result is great confusion in nomenclature. After reviewing the literature and after careful histologic study of 8 of their own cases of embryonal cortical kidney tumor, the authors are convinced that all of these embryonal neoplasms are closely related rather than distinct morphologic entities. They suggest that these tumors be called mesoblastic nephromas and that more complicated pathologic terms, as well as the name "Wilms' tumor," be avoided. Most cellular variations can be included in the mixed, carcinomatous and sarcomatous groups. Further differentiation has no virtue and adds to the current chaotic state of terminology. These embryonal tumors occur at any age, in both sexes, in either kidney, usually are very malignant, tend to recur after either lumbar or transperitoneal nephrectomy, mestastasize to lymph nodes, lungs and liver most frequently, cannot be distinguished from other renal neoplasms clinically and appear to be influenced little by irradiation. The clinical course usually is rapid, and most deaths occur within twelve months of diagnosis and treatment regardless of the specific type of tumor. Like other malignant tumors, surgical cures will depend on early recognition, and even then survival will probably be confined to the few mesoblastic nephromas with relatively low grade malignancy.

Necroptic Studies in Carcinoma of Prostate.—Arnheim presents an analysis of the protocols of postmortem examinations of 176 cases in which carcinoma of the prostate was found. The material was drawn from 21,718 postmortem examinations. No case was found in a person younger than 42 years. Of the total of 176 patients, 139 died of carcinoma of the prostate and 37 died of other causes. There was a sudden increase in incidence of carcinoma of the prostate at the age of 60, regardless of whether the patient died of it or whether the carcinoma was an incidental finding. Ninety-six per cent of the carcinomas were adenocarcinomas. Metastases were not discovered in 33 per cent of the cases. One third of all the metastases were visceral. Bone and lymph node involvement constituted 66 per cent of all metastases. Periaortic, iliac and tracheobronchial lymph nodes were involved in the order mentioned. The bladder was most commonly involved by direct extension. Carcinoma of the prostate is biologically active in some patients and inactive in others.

Streptomycin in Genitourinary Infections.—Satterthwaite and White say that among the 200 patients with paraplegia admitted to their hospital there were many with renal and ureteral calculi. In addition, there were many battle casualties who had formed multiple stones of recumbency. In some of these patients severe pyelonephritis developed. Often the patients were in too poor a condition for a major operation. The success of streptomycin in eliminating fever and toxicity and confining the infection to minimal limits, especially in patients with Escherichia coli infections, permitted the authors to remove urinary calculi by elective rather than emergency procedures. The results of therapy in the 51 cases in which treatment was with streptomycin are presented. Streptomycin was beneficial in 14 of 15 cases of acute severe pyelonephritis which had developed after acute ureteral obstruction. Of 8 cases of urinary sinus tracts treated with streptomycin, complete healing was obtained in 6. Moderate improvement was obtained in the other 2 cases. Two of 3 patients with chronic interstitial cystitis showed improvement. Total arrest of symptoms was obtained in 3 patients with resistant gonococcic urethritis. Five patients with tuberculosis of the genitourinary tract were treated; 4 of these had tuberculous cystitis. Each of these 4 patients had remission of symptoms and healing of the vesical lesions. No improvement was observed in tuberculosis of the seminal tract. The dosage of streptomycin has usually been 1 or 1.5 Gm. a day. Except for the tuberculous infections, the effectiveness of the streptomycin is usually manifested by the fifth day. The authors have been disturbed by the serious toxic reactions, which included 5 cases of involvement of the eighth nerve, one lasting four months. In 2 cases impairment of auditory acuity developed as a delayed reaction. There was 1 case of mild neutropenia. One case of thrombopenic purpura was observed. It is believed that much greater caution is necessary in streptomycin therapy than with penicillin or sulfadiazine therapy.

Minnesota Medicine, St. Paul

31:*1049-1160* (Oct.) *1948*

Clinical Use of Sodium Fluorescein and Radioactive Diiodofluorescein in Localization of Tumors of Central Nervous System. G. E. Moore, W. T. Peyton, S. W. Hunter and L. French.—p. 1073.
Multiple Carcinoma of Stomach and Choledocholithiasis in Patient with Pernicious Anemia. H. B. Neel.—p. 1077.
Gastric Carcinoma: Its Etiology, Symptoms and Treatment. D. State. —p. 1080.
Pitfalls in Early Diagnosis of Carcinoma of Lung. C. A. Good.—p. 1087.
Rheumatic and Bacterial Endocarditis: 1740 Cases. B. J. Clawson. —p. 1094.
Vagotomy for Peptic Ulcer: Follow-Up Study of 20 Cases. R. C. Lam.—p. 1100.

Missouri State Medical Assn. Journal, St. Louis

45:*787-864* (Nov.) *1948*

Eradication of Tuberculosis in Rural Areas. L. S. Jordan.—p. 803.
Common Proctologic Conditions. T. E. Smith.—p. 807.
Office Gynecology. J. A. Hardy.—p. 811.
Papillary Cystadenoma Lymphomatosum. L. H. Pollock.—p. 814.
Gastrojejunal Ulcer After Subtotal Gastrectomy for Duodenal Ulcer. J. M. McCaughan.—p. 817.
Surgery of the Spleen: With Report of Fourteen Cases of Splenectomy. G. N. Johnson.—p. 821.
Epistaxis: Use of Sterile Marine Sponges in Its Control. O. J. Dixon. —p. 824.
Hypertension and Postoperative Results Following Sympathectomy. J. M. Ellis.—p. 828.

New England Journal of Medicine, Boston

239:605-644 (Oct. 21) 1948

*Hepatic Coma: Clinical and Laboratory Observations on Forty Patients. T. L. Murphy, T. C. Chalmers, R. D. Eckhardt and C. S. Davidson. —p. 605.
Use of Brilliant Green in Treatment of Chronic Ulcers of Skin. A. W. Feinberg.—p. 613.
Relation Between Industrial Physician and Family Doctor. T. L. Shipman.—p. 615.
Fenestration Surgery for Deafness: Present Status. C. I. Johnson. —p. 619.
Renal Disease. A. D. Hall and J. A. Leutscher Jr.—p. 621.
Carcinoid of Ileum.—p. 632.
Severe Chronic Ulcerative Colitis. Cirrhosis of Liver, Toxic Type. Acute Glomerulonephritis.—p. 635.

Hepatic Coma.—Murphy and his co-workers report clinical and laboratory studies on 40 patients with severe primary hepatic disease who died in coma. Liver coma is a distinct clinical syndrome characterized by a progression from lethargy to noisy confusion, to coma and usually to death. The syndrome occurs in patients with severe hepatic disease, either spontaneously or as the result of infection, hemorrhage or sedation. In half the patients, the coma was precipitated by infection (17 patients), acute hemorrhage (2 patients) or cerebral metastases (1 patient). Central nervous system depressants have a prolonged action in patients with hepatic disease and in this way are believed to play an important role in the genesis of liver coma. Aside from evidence of severe hepatic disease, the physical examination and laboratory findings during coma are not distinctive nor are they significantly different from precoma findings. Treatment, which is generally unsatisfactory, is directed at maintenance of nutrition, control of infection or hemorrhage and avoidance of sedatives. Analeptics, including glucose, sodium succinate, caffeine and amphetamine, are without effect on the comatose state.

239:645-692 (Oct. 28) 1948

*Intussusception in Childhood: Experiences from 610 Cases. R. E. Gross and P. F. Ware.—p. 645.
Trends in Pulmonary Tuberculosis During Fifty Years at Rutland State Sanatorium. M. Kronick.—p. 653.
Thoracoplasty After Twenty Years. P. Dufault.—p. 660.
Sarcoidosis. D. G. Freiman.—p. 664.
Acute Bacterial Endocarditis Affecting Aortic Valve (Staph. Aureus), Calcific Aortic Stenosis, Mycotic Aneurysm of Left Circumflex Coronary Artery with Rupture.—p. 680.
Generalized Hypertrophy and Dilatation of Heart, Coronary Arteriosclerosis with Occlusion of Descending Branch of Right Coronary Artery, Infarct of Right Ventricle.—p. 683.

Intussusception in Childhood.—Gross and Ware report 610 children, 397 boys and 213 girls between the ages of 3 days and 12 years, with intussusception. The peak of incidence with 415 cases occurred between the third and the eleventh month of life. The causation in 95 per cent of the cases was not known. Intussusception is characterized by sudden onset of paroxysmal abdominal pain, vomiting, bloody stools and a palpable abdominal mass, the condition occurring usually in a well nourished infant. Roentgenologic examination by barium enema may be an aid in the diagnosis of atypical cases, but it is not required in the majority of cases in which the history and physical findings are sufficient to establish the proper diagnosis. Surgical reduction of the intussusception after rapid but important preoperative preparation is the treatment of choice. If resection is necessary, exteriorization is the preferred method, since this prevents contamination of the peritoneal cavity. Postoperative care includes the use of gastric suction, transfusion of blood or plasma, infusion of dextrose or isotonic solution of sodium chloride and in some cases institution of chemotherapy and placement of the child in a high-concentration oxygen tent. The mortality has been reduced to 2.7 per cent.

Ohio State Medical Journal, Columbus

44:969-1072 (Oct.) 1948

Congenital Hypertrophic Pyloric Stenosis. J. Giuseffi Jr. and P. W. Sutton—p. 1001.
Etiology and Diagnosis of Subphrenic Abscess. H. T. Gross.—p. 1005.
Endocrine Aspect of Malignant Tumors. G. H. Twombly.—p. 1009.
Treatment and Cure of Bichloride of Mercury Poisoning by Use of Peritoneal Lavage. J. L. Toth Jr. and H. C. King.—p. 1013.
*Neurophysiologic Disturbances Following Electric Shock Therapy (Electroencephalographic Observations). A. A. Weil.—p. 1017.
Increasing the Efficiency of Public Health Administration and Expansion of Services Imperative. E. R. Shaffer.—p. 1019.
Principles of Early Management of Hand Injuries. R. M. Zollinger.—p. 1023.
*Cystic Fibrosis of Pancreas. W. Sinclair Jr.—p. 1024.

Neurophysiologic Disturbances Following Electric Shock Therapy. — Weil summarizes electroencephalographic studies on 150 patients who were subjected to from three to twenty electroshock treatments for various psychiatric disorders. Many of the abnormal wave patterns observed resembled epileptic patterns. The incidence of abnormalities seemed to be somewhat less frequent when unidirectional current was used (Reiter apparatus) than when alternating current was used. More than ten shock treatments produced generally longer-lasting and more pronounced brain wave abnormalities. The youngest and the oldest age groups show the most pronounced electroencephalographic abnormalities after shock treatment. It appears also, that a normal preshock electroencephalogram promises a better clinical result from electroshock therapy than an abnormal one. It is suggested that whenever possible electroencephalographic studies should precede electroshock therapy. Psychotherapy should be substituted for electroshock treatment at least after ten treatments.

Cystic Fibrosis of Pancreas. — Sinclair reports a male infant who was hospitalized when 9 weeks old and who died at 5 months. The case is significant because it calls attention to the fact that the clinical and pathologic aspects of cystic fibrosis of the pancreas may be present even though the enzyme activity of the duodenal juice and the total fat content of the stools are normal. This unusual circumstance is explained in this instance by the microscopic observation that approximately one half of the pancreas was the seat of cystic fibrosis while the remainder was practically normal.

Pediatrics, Springfield, Ill.

2:369-510 (Oct.) 1948

*Reproductive Histories of Mothers of 322 Infants with Erythroblastosis. Edith L. Potter.—p. 369.
Growth of Heart Related to Bodily Growth During Childhood and Adolescence. Marion M. Maresh.—p. 382.
Psychotherapeutic Aspects of Pediatric Practice. Hilde Bruch and D. J. McCune.—p. 405.
Immunologic and Biochemical Studies in Infants and Children, with Special Reference to Rheumatic Fever: IV. Occurrence of Agglutinins in Normal and Abnormal Conditions. P. F. deGara.—p. 410.
Infectious Croup: II. "Virus" Croup. E. F. Rabe.—p. 415.
Primary Diffuse Parathyroid Hyperplasia in Infant of Four Months. R. N. Philips.—p. 428.
*Relationship of Fibrocystic Disease of Pancreas to Deficiency of Secretin. A. H. Baggenstoss, Marschelle H. Power and J. H. Grindlay.—p. 435.

Reproductive Histories of Mothers of Infants with Erythroblastosis.—In connection with studies of erythroblastosis fetalis conducted at the Chicago Lying-in Hospital between 1935 and 1947, inclusive, reproductive histories have been obtained for 175 Rh-negative women who have given birth to one or more infants proved to have had this disease. Potter says that these women had a total of 669 pregnancies during the period under investigation. They had 341 pregnancies preceding the birth of the first infant with erythroblastosis. These resulted in 7 stillbirths, 13 neonatal deaths, 65 abortions and 256 surviving children. Forty-four of these abortions followed the birth of the last normal child and preceded the birth of the first child with erythroblastosis. The average number of surviving children born to each patient before the birth of an infant with erythroblastosis was 1.4. The diagnosis of erythroblastosis was made for the first time in 7 women in a first pregnancy and 168 women in second or subsequent pregnancies. Four of the women without earlier pregnancies had had trans-
f
Of the 178 infants affected, 56 died before birth, 60
birth and 62 survived. Ninety-six women had 179
following the birth of an infant with erythroblastosis. These have ended in the birth of 3 Rh-negative, 144 Rh-positive infants with erythroblastosis and 32 abortions. Thirteen of the abortions are known to have been induced. Sixty-nine of the Rh-positive infants were stillborn, 63 died and only 12 survived. Three of the latter are known to have brain damage. Among 18,468 deliveries the frequency with which erythroblastosis occurred for the first time varied from once in 2,814 deliveries for women in their first pregnancies to 1 in 172 in second pregnancies and in 1 in 55 for sixth pregnancies. In the last two years no liveborn infant has died of erythroblastosis in the Chicago Lying-in Hospital who had not had an older sibling affected by the same disease. In evaluating treatment, the previous reproductive histories of the mothers of the treated infants must be taken into account. In the experience of the author the previous maternal history has been of more value in prognosticating the fate of an infant born to an immunized Rh-negative woman than have changes in maternal antibody titer or differences in the variety of antibodies present.

Fibrocystic Disease of Pancreas and Deficiency of Secretin.—Baggenstoss and his associates say that in recent histopathologic studies of the pancreas the occurrence of a remarkable degree of dilatation of the acini, flattening of the lining epithelial cells and inspissation of secretion has been described in a variety of pathologic states. The histologic appearance of the lesion is similar to that observed in the early stages of fibrocystic disease of the pancreas in children. The lesion has occurred with a high incidence in persons dying of uremia, carcinoma of the stomach, obstruction of the small intestine, chronic ulcerative colitis and sepsis. On the basis of analysis of the cases and a review of pertinent experimental work, it was concluded that in the pathogenesis of this lesion there is inhibition of the type of pancreatic secretion normally stimulated by secretin. There is also nervous stimulation of the pancreas, leading to depletion of zymogen granules and formation of a thick, viscid juice. There is dehydration which results in inspissation of the juice and the development of intrinsic obstruction. Finally, there is malnutrition (deficiency of protein), resulting in failure of reparative protein synthesis in the cells of the pancreatic acini. It was postulated that a congenital deficiency of secretin is responsible for fibrocystic disease of the pancreas in children. The authors are of the opinion that the varied clinical and pathologic manifestations of this disease can be more nearly adequately explained by this hypothesis than by any of the other current theories. The absence of secretin in the upper part of the intestinal tract of a patient with fibrocystic disease of the pancreas lends support to this theory. It has been shown to be possible to extract secretin from the upper part of the intestinal tract of persons 2 months to 73 years old. Consistent failures occurred in work with patients in the neonatal period. Successful extraction of secretin from these patients in the neonatal period can be carried out, however, by combining the crude extracts obtained from a number of patients. The extraction of secretin is successful if it is done up to fifteen hours post mortem. Because this method of extraction is successful in individual cases at necropsy, it becomes possible to correlate the presence or absence of secretin with varying pathologic conditions.

Philippine Journal of Surgery, Manila

3:109-166 (May-June) 1948

Investigation Into Accuracy of Diagnosis in Surgical Service of Philippine General Hospital. P. M. Recio and A. Banson.—p. 109.
Modified Treatment of Appendical Stump in Appendectomy. F. C. Guzman and O. Reyes.—p. 117.
Value of Peroral Endoscopy in Diagnosis and Treatment of Diseases of Air and Food Passages. S. G. Menes.—p. 121.
Guide for Physical Disability Compensation as Applied to Manila Police Force. M. B. Lara.—p. 129.
*Accidents in Spinal Anesthesia and How to Meet Them: Report of 2 Cases. L. C. de Guzman and T. Quitco.—p. 139.
Management of Injuries of Urethra. A. I. Reyes.—p. 143.

Accidents in Spinal Anesthesia.—Recent reports in medical literature have emphasized procaine sensitivity as a possible cause of reactions after spinal anesthesia and have advised the testing of sensitivity by dermal tests. De Guzman and Quitco believe that dehydration is a factor in some of these accidents. The 2 reported cases, in which spinal anesthesia was followed by severe complications, concerned patients who had not taken adequate amounts of fluid before the induction of spinal anesthesia and who were in a state of relative dehydration, which involves low blood and cerebrospinal fluid pressures. A low spinal fluid pressure signifies less spinal fluid to mix with the anesthetic agent and therefore a greater procaine concentration. Dehydration of the body secondary to the preoperative fasting or to acute pathologic conditions would seem to contraindicate spinal anesthesia unless fluids required by the body are supplied. Patients should take plenty of fluids the day and night before and on the day of operation. Artificial respiration is important when an accident results from spinal anesthesia. Venous fluids should be on hand. Although epinephrine is effective in raising the blood pressure in spinal anesthetic shock, caution should be used in giving it. In case a high intercostal paralysis results from the anesthetic, the best position for the patient is a flat horizontal one. It is better to give artificial respiration before injections.

Psychosomatic Medicine, Baltimore

10:193-252 (July-Aug.) 1948

Studies in Epilepsy: Personality Pattern, Situational Stress, and Symptoms of Narcolepsy. W. Barker.—p. 193.
Emotional Aspects of Hearing Loss. P. H. Knapp.—p. 203.
Amebic Colitis. R. H. Crede, M. Rosenbaum and E. B. Ferris.—p. 223.
Dibenamine Therapy in Certain Psychopathologic Syndromes. F. V. Rockwell.—p. 230.

Public Health Reports, Washington, D. C.

63:1351-1378 (Oct. 15) 1948

United States Health Missions in Liberia. J. B. West.—p. 1351.
Q Fever: Three Cases of Laboratory Infection. J. W. Oliphant and R. R. Parker.—p. 1364.

63:1379-1410 (Oct. 22) 1948

The First World Health Assembly. J. A. Doull and M. Kramer.—p. 1379.

63:1411-1438 (Oct. 29) 1948

Prevention of Gonorrhea with Penicillin Tablets: Preliminary Report. H. Eagle, A. V. Gude, G. E. Beckmann and others.—p. 1411.
Histoplasmosis in Wild Rats: Occurrence and Histopathology. C. W. Emmons and L. L. Ashburn.—p. 1416.

Quart. Bull. of Sea View Hospital, Staten Island, N.Y.

9:277-366 (Oct.) 1947. **Partial Index**

*Role of Pleura in Intra and Extrapleural Pneumonectomy: Follow-up of Seventy-Seven Consecutive Cases. I. G. Tchertkoff and I. J. Selikoff.—p. 277.
*Treatment of Tuberculous Meningitis with Intramuscular and Intrathecal Streptomycin: Case Report. H. R. Wainerdi and J. F. Worthen.—p. 285.
"Reversible" Bronchiectasis. M. S. Lloyd.—p. 299.
Electrocardiogram in Pneumothorax. T. T. Fox and L. Fishman.—p. 305.
Tuberculous Meningitis with Transverse Myelitis. M. R. Louria.—p. 312.

Role of Pleura in Pneumonectomy.—Tchertkoff and Selikoff report 77 patients with pulmonary tuberculosis on whom pneumonectomy was performed at Sea View Hospital during the period March 1946 to April 1948. In 52 of these, intrapleural pneumonectomy was done, all or large portions of the parietal pleura being left intact. In the remaining 25 patients the operation was extrapleural and either all or nearly all of the parietal pleura was removed. Intrapleural pneumonectomy was followed by bronchopleural fistula and/or empyema in 19 patients, results similar to those reported by other workers. Besides these serious complications, 8 patients had wound difficulties, 5 suffered spread and 2 were failures. In contrast to this no case of empyema was observed in the entire group in which extrapleural pneumonectomy was performed; there were no deaths, no spreads and no failures. It is suggested that this difference in results is due to the total removal of the parietal pleura in extrapleural pneumonectomy. In contrast the retention of the parietal pleura during intrapleural pneumonectomy leaves a source of serious postoperative complications. The future treatment of postresectional reopening of the bronchial stump may be early extensive pleurectomy rather than bronchoplasty and/or thoracoplasty as currently employed.

Streptomycin in Tuberculous Meningitis.—Wainerdi and Worthen treated a woman aged 21 who had tuberculous meningitis with 257.2 Gm. of streptomycin given in sixty-seven intrathecal instillations of 200 mg. (200,000 units) each and six hundred and twelve intramuscular injections of 400 mg. (400,000 units) over a period of one hundred and fifteen days. The positive observations on admission were limited to nuchal rigidity and general hyperirritability. The patient's complaints at this time were limited to excruciating headache which seemed to be occipital and an inconstant diplopia. The patient was followed by careful examination preceding each lumbar puncture, of which 80 were performed, either for medication or diagnostic purpose, during her course. She had a three day period of extreme excitement early in her course. Seven weeks after admission the patient had begun to show definite clinical improvement and could touch her chin to her chest without pain. Her diplopia had all but vanished. During the eighth week tinnitus, which had for several days been transitory, set in again, and five days later she began to complain of deafness. It was about this time that the first course of punctures was interrupted in order that the element of chemical—i. e., streptomycin—arachnoiditis might be evaluated. The patient was followed by diagnostic punctures every four days. Her condition worsened and she had an episode which mimicked her original syndrome. At this time a second course of intrathecal instillations was begun. At her discharge to a rigidly supervised home regimen the patient had definite clinical improvement in all spheres but the auditory. She is being followed at home with frequent lumbar puncture accompanied by extensive physical and neurologic examination. The authors believe it conservative to state that the patient's meningitis of established tuberculous origin has been cured. There were clinical and laboratory reasons for concluding that a toxic (chemical) meningitis developed from the drug which was used. She continues to have a residium in the form of severe eighth nerve deafness bilaterally.

Radiology, Syracuse, N. Y.

51:453-610 (Oct.) 1948

Idiopathic Pulmonary Fibrosis: Roentgenologic Findings. L. L. Robbins.—p. 459.
*Pathology of Pulmonary Fibrosis, Including Chronic Pulmonary Sarcoidosis. T. B. Mallory.—p. 468.
Pulmonary Fibrosis: Clinical Aspects. D. S. King.—p. 477.
Miliary Calcification of Lung: Etiologic Aspects. H. P. Doub.—p. 480.
Bronchography by Atomization. P. L. Fariñas.—p. 491.
Roentgen Therapy of Carcinoma of Lower Lip. J. A. Del Regato.—p. 499.
*Cancer of Larynx: Five-Year Results of Radiotherapy. M. Cutler.—p. 509.
Werner's Syndrome: Case Report. M. M. Pomeranz.—p. 521.
Radioactive Iodine: Its Use as Tool in Studying Thyroid Physiology. R. W. Rawson and B. N. Skanse.—p. 525.
Radioactive Iodine Studies of Functional Thyroid Carcinoma. Virginia K. Frantz, Edith H. Quimby and T. C. Evans.—p. 532.
Factors Involved in Experimental Therapy of Metastatic Thyroid Cancer with I^{131}: Preliminary Report. L. D. Marinelli, J. B. Trunnell, R. F. Hill and F. W. Foote.—p. 553.
Treatment of Hyperthyroidism with Radioactive Iodine (I^{130}, 12-Hour Half-Life and I^{131}, 8-Day Half-Life). E. M. Chapman, B. N. Skanse and R. D. Evans.—p. 558.
*Clinical Experience in Diagnosis and Treatment of Thyroid Disorders with Radioactive Iodine (Eight-Day Half-Life). S. C. Werner, Edith H. Quimby and Charlotte Schmidt.—p. 564.

Pathology of Pulmonary Fibrosis.—According to Mallory proliferation of fibroblasts resulting in the development of abnormal fibrous tissue in the lung is a common sequel of many types of injury to the pulmonary parenchyma. Few lungs of adults are found free from foci of fibrosis at necropsy. The term "pulmonary fibrosis," however, is rarely used as a diagnosis when the causation of the fibrous reaction is obvious, as in fibroid phthisis, lipid pneumonia or silicosis, nor is it commonly applied to localized scars such as healed infarcts, but is reserved for examples of multifocal or generalized involvement of the lungs, the origin of which is dubious or unknown. It is the pathology of this latter group which is the subject of the present paper. Four types are described: (1) organized pneumonia, (2) healed infarction, (3) healed necrotizing pneumonitis and (4) interstitial fibrosis. In a survey of 6,000 necropsies, 59 cases of pulmonary fibrosis (exclusive of tuberculosis, silicosis and lipid pneumonia) were recorded. Of these, 23 were judged to be clinically significant. Among this number, three groups were considered of interest. It is pointed out that the incidence of organized pneumonia in patients with chronic bronchial asthma is too high to be coincidence, that in radiation pneumonitis the picture is frequently complicated by the scars of necrotizing pneumonitis and of healed neoplasia. A progressive form of granulomatous pneumonitis healing by fibrosis is described, and evidence is presented for considering this a form of localized pulmonary sarcoidosis.

Cancer of Larynx.—The report by Cutler is based on a study of 107 consecutive, microscopically proved cancers of the larynx treated by radiation in the Chicago Tumor Institute. The author discusses concentration radiotherapy, a term which he introduced to emphasize two factors: the administration of a large total dose in a relatively short period (eighteen days) and the use of an increasing dose through a diminishing portal. Criteria for selection of treatment are discussed. Five year cures were obtained in 37 patients (35 per cent). More than half the cases were inoperable. Among the operable cases beyond the scope of laryngofissure the only surgical alternative for which was total laryngectomy, radiotherapy effected 52 per cent five year cures, and among the inoperable group, 20 per cent of the patients are free of disease after five years. The five year curability among the cases in which the cords were not completely fixed is 60 per cent. The author believes that when the cords are freely movable or only partly fixed by carcinoma, curability is high (60 per cent) and radiotherapy is the method of choice. Laryngectomy is indicated for intrinsic lesions with complete fixation of the cords occurring in subjects of good life expectancy, provided the fixation is caused by carcinomatous invasion and not by inflammation. If, after careful consideration of all factors, a decision between radiotherapy and laryngectomy remains difficult, a radiotherapeutic test or complete irradiation should be considered as the initial procedure. There is reason to expect that further improvements in the technic of irradiation and earlier diagnosis will further diminish the necessity for total laryngectomy.

Radioactive Iodine in Thyroid Disorders.—Werner and his co-workers show that since the release of isotopes from the pile at Oak Ridge it has been possible for suitably equipped institutions to obtain radioactive iodine (I^{131}). Accordingly an appraisal of the treatment of toxic goiter with this agent has been undertaken in several hospitals, and this paper is a preliminary report of observations made until now. Radioactive iodine of eight day half-life (I^{131}) has been used as a tracer and for treatment of toxic goiter. Tracer uptake has diagnostic value when stable iodine has not been given shortly before this procedure and when the diet has not been seriously deficient in iodine. Normal uptake is 15 to 30 per cent of the administered tracer dose of 40 to 100 microcuries. Anything more than 40 per cent is regarded as definitely indicating hyperthyroidism; anything less than 10 per cent as hypothyroidism. Therapy has been successful in 30 of 34 cases after one or, when necessary, two doses, with 4 failures. Six other cases did not respond to one dose, and have not been followed after a second long enough to draw conclusions. Failure appears to be related to inadequate dosage, as a result mainly of large size of the gland. An unusually high basal metabolic rate may also contribute to an unsatisfactory result. Complications following radioiodine therapy include sore throat, cough, tender gland, flare-up of toxicity and transient hypothyroidism. Only a few cases of each have been observed, none of them serious. Malignant change in later years following treatment with radioiodine is not thought probable. Radiation hazards to doctors and others associated with patients undergoing this therapy are analyzed; under the present conditions they are unimportant.

Review of Gastroenterology, New York

15:739-804 (Oct.) 1948

Replacement Therapy in Gastrointestinal Hemorrhage. V. Ginsberg, I. Hirshleifer, N. Ritz and I. R. Schwartz.—p. 747.
Acute Duodenal Ulcer. M. Feldman.—p. 757.
Inactivation of Estrogens by Lipotropic Substances: Studies of Liver Dysfunction—II. S. Waldman and L. Pelner.—p. 762.
Early Successful Gastrointestinal Surgery: 2 Interesting Cases. M. Thorek.—p. 766.
Study of Digestive Capacity of the Stomach by Means of Physicochemical Methods (Part III). S. S. Cytronberg, A. L. A. Del Castillo and A. De Lachica.—p. 770.

South Dakota Journal of Medicine, Sioux Falls

1:382-417 (Oct.) 1948

Lyle Hare—South Dakota's General Practitioner of the Year.—p. 382.
Significance of Developments on International Front. S. Haydon.—p. 384.
Report of Delegate to 1948 A.M.A. Meeting. H. R. Brown.—p. 390.
Tendon Transfer in Irreparable Radial (Musculospiral) Paralysis. R. E. Van Demark.—p. 391.
Government Medicine in New Zealand: Its Social, Economic and Political Implications. A. L. Jones.—p. 393.
"Acute Surgical Abdomen in Old Age": Case Report. E. Pekelis.—p. 399.

Southern Surgeon, Atlanta, Ga.

14:671-734 (Oct.) 1948. **Partial Index**

Surgical Treatment of Polyposis of Colon. F. W. Rankin and J. G. Webb.—p. 671.
Acute Cholecystitis. J. H. Johnston Jr.—p. 683.
*Human Bites: Study of Second Series of 93 (Chiefly Delayed and Late) Cases from Charity Hospital of Louisiana at New Orleans. F. F. Boyce.—p. 690.
Epithelioma of Penis. G. H. Ewell.—p. 715.

Human Bites.—To the approximately 800 cases of human bites already on record in the literature, including 90 previously reported from Charity Hospital of Louisiana at New Orleans, Boyce adds a second series of 126 bites in 93 patients. Of the 126 bites, 79 affected the hand. Bites on parts of the body other than the hand are regarded as less dangerous than bites on the hand, and, generally speaking, this is correct. However, patients with bites on the nose, lips, cheeks and chin have suffered severe infections. The serious consequences of human bites are believed the result of a combined infection in which the fusiform bacillus and the spirochete, in symbiosis, play the chief role but in which other organisms are also concerned. A human bite sustained by a blow of the fist against the teeth may damage an extensor tendon, sometimes completely severing it, may fracture a metacarpal bone and may directly penetrate a joint capsule. When the hand is extended after the injury, the injured surfaces are buried under overlying tissue. The result is a state of devitalization and anaerobiosis in which the fusiform bacillus and the spirochete thrive. Furthermore, the organisms of the human mouth are already acclimated to growth in human tissues and fluids, and therefore are already thriving before the defenses of the host can be mustered against them. The ideal treatment of a human bite seen early (within three or four hours of injury) includes: (1) cleansing for at least ten minutes with soap and water, followed by thorough irrigation of the wound with isotonic sodium chloride solution or clear sterile water; (2) determination of the depth and character of the injury by gentle retraction of the wound edges; (3) splinting of the hand with massive dressings in the position of function, followed by the application of moist heat, if no surgical treatment is indicated; (4) excision of devitalized tissue; debridement should be thorough but also conservative; (5) hospitalization for at least forty-eight hours, or as much longer as is necessary to determine that infection will not occur, and (6) the administration of both sulfathiazole (or sulfadiazine) and penicillin. The management of a patient seen late should follow the general principles of cleansing, examination, splinting and postoperative treatment which have been outlined. Primary wound closure is definitely contraindicated in human bites.

Wisconsin Medical Journal, Madison

47:969-1060 (Oct.) 1948

Evaluation of the Cardiac Patient for Anesthesia and Surgical Procedures. O. O. Meyer.—p. 987.
Evaluation and Management of the Cardiac Patient for Anesthesia and Surgery. F. F. Rosenbaum.—p. 989.
Duodenal Diverticula. J. W. McRoberts.—p. 994.
Antibiotics in Ear, Nose and Throat. S. Salinger.—p. 997.
Symposium on Prolonged Labor. J. H. Bloomfield.—p. 999.

47:1061-1144 (Nov.) 1948

Some Thoughts of an Incoming President. K. H. Doege.—p. 1079.
Anesthesiology for Wisconsin. W. Kreul.—p. 1081.
Experiences with Sympathectomy in Peripheral Vascular Disease. J. M. Sullivan and W. B. Ross.—p. 1083.
Treatment of Mercury Poisoning with BAL and Peritoneal Irrigation. B. J. Longley.—p. 1089.
Bronchogenic Carcinoma: Cytologic Diagnosis from Bronchial Aspirations. L. L. Swan.—p. 1092.
Benign Multiple Hemangiomas. J. M. King, J. A. Klieger and L. R. Weinshel.—p. 1095.
Some Modern Aspects of Treatment of Bulbar Poliomyelitis. H. D. Bouman and K. B. McDonough.—p. 1099.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

60:315-358 (Oct.) 1948

Multiple Primary, Self-Healing Squamous Epithelioma of Skin. J. F. Smith.—p. 315.
*Sunlight and Skin Cancer in Kenya. F. Piers.—p. 319.

Sunlight and Skin Cancer in Kenya.—According to Piers the concept that frequent and prolonged exposure to sunlight may lead to the development of cutaneous cancer in man has received considerable support by recent experimental and epidemiologic work. Since 1941 he has seen 51 cutaneous cancers in the white population of Kenya Colony, where cutaneous cancer is second in frequency only to breast cancer. Most of the patients with cancer gave a history of frequent and prolonged exposure to the sunlight of equatorial Africa. The severe types of chronic sunburn described under the names of farmer's skin and chronic solar dermatitis were present in two thirds of the patients with cancer. The conclusion seems to be justified that sunlight is the paramount factor in the causation of cutaneous carcinoma in Kenya. The farmer, rancher and white hunter are exposed to the equatorial sun by necessity; but the town dweller, following the command of fashion, exposes himself voluntarily with a truly alarming recklessness. The habit of dispensing with the Victorian sun helmet altogether and of participating in outdoor activities and sports without adequate protection is widespread among the younger generation of Kenya.

British Journal of Ophthalmology, London

32:729-792 (Oct.) 1948

Prognosis in Uveal Melanoma. B. Benjamin, J. N. Cumings, A. J. B. Goldsmith and A. Sorsby.—p. 729.
Double Staining for Bulk Specimens of Retina and Choroid. A. Lowenstein.—p. 748.
Anterior Flap Sclerotomy with Basal Iridencleisis. H. B. Stallard.—p. 753.
*Allergic Conditions of Eye. I. Keratitis Rosacea. Vera B. Walker.—p. 759.
*Id. II. Migraine. Vera B. Walker.—p. 764.
Effects of Various Types of Penicillin Injected into the Vitreous. P. A. Gardiner, I. C. Michaelson, R. J. W. Rees and J. M. Robson.—p. 768.
Hernia and Prolapse of Vitreous and Prolapse of Iris in Connection with Cataract Operation. M. Vannas.—p. 776.

Keratitis Rosacea.—Walker points out that keratitis rosacea, a relatively common abnormality of the skin of the face of adults between the ages of 20 and 50 years, is frequently accompanied by ocular manifestations, varying in degree from mild conjunctivitis, through all the stages of blepharoconjunctivitis, episcleritis and keratitis, to eventual visual incapacity. Analyzing 76 cases of keratitis rosacea, the author found that in 52 an allergy was the cause of both the skin and the corneal lesions. After desensitization, 70 per cent of patients remained symptom free for at least two years.

Migraine.—Walker analyzed 100 patients with migraine and found that in 54 of them the migraine was of allergic origin. They remained free from attacks after desensitization or avoidance of their allergens. The author also noted that the average systolic blood pressure of the 54 allergic patients was noticeably lower than that of 46 nonallergic ones.

Glasgow Medical Journal

29:341-370 (Oct.) 1948

*Folic Acid in Non-Tropical Sprue with Particular Reference to Fat Absorption and Radiologic Appearances of the Small Intestines. J. W. Ferguson and E. Calder.—p. 341.
Laboratory Methods Used in Investigating Influenza. A. Isaacs.—p. 357.
Successful Nephrectomy in Case of Malignant Hypertension. J. H. Wright and E. A. Marshall.—p. 362.

Folic Acid in Nontropical Sprue.—Ferguson and Calder attempted to assess the effect of synthetic folic acid in nontropical sprue, particularly with regard to the effect on intestinal function as judged by fat absorption and by roentgenologic appearances of the small intestine. They review results obtained in 7 patients. The three youngest, aged 15, 17 and 18, gave a definite history of celiac disease in childhood and had had previous hospital treatment. Two, aged 31 and 48 years, had a history suggestive of defective fat absorption in earlier life, while in the remaining 2 patients, aged 32 and 35, no such history could be elicited and the symptoms were of relatively short duration. Prior to therapy, the patients were kept under observation for two weeks during which they were subjected to various tests. The folic acid was usually given in doses of 20 mg. or 10 mg. daily for periods of two, three or six weeks. Among the patients in whom the bone marrow was normoblastic only 1 appeared to obtain subjective improvement. In the others, the general condition was unaltered or had deteriorated. There was no evidence of improvement in fat absorption, biochemical findings, blood picture or intestinal pattern in any of the patients. Of the 2 patients who were known to have had megaloblastic marrow reaction, one showed clinical and hematologic improvement and a return of the intestinal pattern to normal, but the steatorrhea persisted. In the other there was no apparent clinical or hematologic improvement, but again there was a striking roentgenologic improvement without improvement in fat absorption.

Lancet, London

2:595-634 (Oct. 16) 1948

*Streptomycin Therapy of Tuberculous Meningitis in Children. K. Choremis, N. Zervos, V. Constantinides and S. Pantazis.—p. 595.
Recurrent Dislocation of Shoulder: Surgical Treatment. J. E. Richardson.—p. 599.
*Effect of Carinamide on Blood-Penicillin Concentrations in Man. R. B. Hunter and W. M. Wilson.—p. 601.
Mass Deaths of Infants: Role of Cross-Infection. T. Brehme.—p. 604.
Para-Aminobenzoic Acid in Leukemia: Effect on Leucocyte-Count. H. B. May and J. Vallance-Owen.—p. 607.
Despeciated Bovine Serum. D. Annis.—p. 609.
p-Aminosalicylic Acid: Determination in Blood and Cerebrospinal Fluid. W. Klyne and J. P. Newhouse.—p. 611.

Streptomycin Therapy of Tuberculous Meningitis.—Choremis and his associates say that from April to November of 1947 a total of 72 patients with tuberculous meningitis were treated at the University of Athens. All 9 patients who did not receive streptomycin died, whereas of the 63 patients who received combined intramuscular and intrathecal therapy 29 survived. The earlier the treatment the more favorable the prognosis. By "early" is meant within the first ten days from the onset. Dosage depends on the time when treatment is begun in relation to the stage of the disease, and to a less extent on the patient's age. Very young children usually need and tolerate streptomycin in larger doses per unit of body weight than do older ones. Tuberculous meningitis combined with miliary tuberculosis needs larger doses and longer treatment than meningitis alone. The best results have been obtained with intermittent treatment with intervals of rest. The authors believe that paratracheal adenitis in primary tuberculosis is too often a forerunner of tuberculous meningitis for this to be regarded as coincidental, and they consider that streptomycin should be used in the treatment of severe cases of primary tuberculosis in children. Of 18 such patients 12 subsequently contracted tuberculous meningitis. Intrathecally administered streptomycin is essential in tuberculous meningitis, but the intrathecal dosage should be kept to the effective minimum. The effect of the drug must be watched all the time.

Carinamide and Concentration of Penicillin in Blood.—The experiments described by Hunter and Wilson were designed to determine the effect of carinamide on the blood penicillin levels which can be achieved by repeated three-hourly or four-hourly injections, by a single injection, and by penicillin given by mouth. The patients were men between the ages of 20 and 52 who were convalescing from acute infections; none had evidence of renal impairment. The authors say that their findings are in agreement with the recent American work. They show that carinamide can be given by mouth *in doses sufficient to delay the excretion of penicillin* and to raise the blood-penicillin levels. Systemic toxicity is apparently low. There is no evidence of damage to the kidney, and the tubular inhibition is readily reversed by stopping the administration of carinamide. Unfortunately in the case of many preparations several years may elapse before these are clearly recognized. For this reason a drug which interferes with tubular function should be used with caution. *This is* especially the case with carinamide because of the appearance in the urine of a reducing substance which is apparently a pentose and may well be a product of disorganized cellular metabolism. For these reasons the authors suggest that until carinamide has had a more extensive clinical trial its use should be restricted to those cases in which the maintenance of high blood-penicillin levels is essential.

2:635-674 (Oct. 23) 1948

Meningococcosis, a Protean Disease. H. S. Banks.—p. 635.
Infection by Penicillin-Resistant Staphylococci. Mary Barber and Mary Rozwadowska-Dowzenko.—p. 641.
*Carotid-Sinus Syndrome: Case Treated by Bilateral Denervation. R. Turner and J. R. Learmonth.—p. 644.
*Fatal Staphylococcal Enteritis Developing During Streptomycin Therapy by Mouth. I. R. H. Kramer.—p. 646.
Treatment of Local Infection with Diamidines. F. Kohn and Clara D. Cross.—p. 647.
Alginates in Endaural Wound Dressing. E. R. Garnett Passe and G. Blaine.—p. 651.

Denervation in Carotid Sinus Syndrome.—Turner and Learmonth report the case of a man, aged 61, who had benign essential hypertension and frequent incapacitating attacks of giddiness, which were shown to be due to hypersensitive carotid sinus reflexes. Bilateral carotid sinus denervation was carried out, and during the succeeding year the patient has been free from attacks. There were no adverse effects from the operation.

Fatal Enteritis During Streptomycin Therapy.—Kramer presents a fatal case of enteritis in an infant receiving streptomycin by mouth. A streptomycin-resistant coagulase-positive Staphylococcus aureus was obtained in pure culture from the terminal ileum at necropsy. It is suggested that the Staph. aureus, already present elsewhere in the body, was rendered resistant to streptomycin by the small amount of the drug absorbed from the intestine and that elimination of the normal intestinal flora may have contributed to the establishment of the Staph. aureus there.

Medical Journal of Australia, Sydney

2:309-336 (Sept. 18) 1948. Partial Index

*Rheumatoid Arthritis After Injury to Single Joint. M. Kelly.—p. 309.
Congenital Cystic Disease of Lung. K. M. Bowden.—p. 311.

Rheumatoid Arthritis After Injury to Single Joint.—Kelly reports 10 cases in which there was no rheumatic history before the precipitation of chronic polyarthritis by injury to a single joint. When rheumatoid arthritis follows injury to a joint the spread of the disease shows a striking preference for symmetric patterns. The constitutional pattern that favors the spread of the disease seems to be a transient rather than a permanent condition of the organism.

Quarterly Journal of Medicine, Oxford

17:175-256 (July) 1948

The Kidney in Periarteritis Nodosa. J. Davson, J. Ball and R. Platt.—p. 175.
*Toxic Effects of Calciferol. S. T. Anning, J. Dawson, Doris E. Dolby and J. T. Ingram.—p. 203.
*Factors Influencing Plasma Concentrations of Salicylate. W. A. Parker.—p. 229.
Hemochromatosis. Observations on Incidence and on Value of Liver Biopsy in Diagnosis. W. E. King and E. Downie.—p. 247.

Toxic Effects of Calciferol.—The investigation reported by Anning and his associates involves 200 outpatients, the greatest majority (167) of whom had lupus vulgaris. The others had sarcoidosis, Bazin's disease (tuberculosis indurativa), tuberculosis verrucosa cutis, scrofuloderma, tuberculous lymphadenitis and similar disorders. All patients received 2 pints of milk daily in addition to their normal rations. Calciferol was given daily by mouth in tablet form in doses varying between 50,000 and 150,000 international units. The period of treatment varied between one and twenty-one months. Apart from clinical, and in some cases radiologic and electrocardiographic, examinations, biochemical investigations were undertaken. Total serum calcium determinations were made. The diffusible calcium was determined by an ultrafiltration technic and the serum protein determination by a copper sulfate technic. The ionic calcium and the inorganic phosphorus were also estimated and the renal function was examined in some of the cases. In 38 of the 200 patients toxic symptoms developed as the result of treatment with calciferol. The authors gained the impression that calciferol given in a daily dosage of 100,000 to 150,000 international units or in a dosage of more than 1,100 international units per kilogram of body weight may cause toxic symptoms or biochemical changes indicative of toxicity. The diagnosis of toxicity may be made by consideration of the symptoms and biochemical changes, of which a rise in the diffusible serum calcium is the most reliable. A rise above 7.5 mg. per hundred cubic centimeters of serum calcium appears to indicate the presence of toxicity. The effects of calciferol intoxication fall most heavily on the kidneys. Impairment of function may be temporary or may persist and may be present without symptoms of toxicity.

Plasma Concentrations of Salicylate.—Parker aimed to determine the influence of dosage, frequency of administration, route of administration, fluid intake and precipitation and deterioration of mixtures of sodium salicylate and sodium bicarbonate on plasma concentrations of salicylate. Excretion was studied over many days. The majority of patients on whom observations were made were receiving sodium salicylate during the treatment of rheumatic fever and rheumatoid arthritis, and the remainder were convalescent. The authors found that although maximal plasma concentrations occurred two hours after oral administration, four-hourly dosage maintained plasma levels successfully. A low fluid intake increased plasma concentration of salicylate when a fixed daily dose of sodium salicylate was continued. After such a rise the resumption of adequate fluid intake speedily diminished plasma concentrations. There was a reduction of 10 per cent in salicylate content of mixtures of sodium salicylate and sodium bicarbonate after standing for three weeks. Inadequate shaking of such mixtures before administration caused the salicylate content of a dose to vary from 70 to 120 per cent of the expected amount. Maximal plasma concentrations followed eight hours after administration of sodium salicylate, but the addition of alkali diminished absorption of the drug from the rectum. Satisfactory plasma levels and therapeutic response was shown in 2 cases of rheumatic fever treated by the rectal route throughout the illness. Plasma concentrations obtained by oral and intravenous administration of sodium salicylate were compared, and no advantage was found in the intravenous administration. Urinary excretion was correlated with plasma concentrations of salicylate and with concurrent administration of sodium bicarbonate, potassium citrate, ammonium chloride and para-aminobenzoic acid, after it had been shown that no salicylate was excreted in the sweat and only negligible quantities in the feces. It was shown that alkaline salts diminished plasma salicylate concentration by 10 to 35 per cent by causing an increased excretion of free salicylate in the urine, while ammonium chloride and para-aminobenzoic acid had the opposite effect. There was a direct relationship between increased excretion of free salicylate and the p_H of the urine.

South African Medical Journal, Cape Town

22:601-632 (Oct. 9) 1948. Partial Index

*Folic Acid: Report of 12 Patients Treated with Synthetic Pteroylglutamic Acid with Comments on Pertinent Literature. L. Berk, J. L. Bauer and W. B. Castle.—p. 604.
Secondary Infection in Chronic Amebic Colitis: Clinicopathologic and Radiologic Study. A. M. Beemer, E. Samuel and A. Shedrow.—p. 612.
Two Separate Uteri: Case Report. H. F. Lowenthal.—p. 626.

Treatment with Folic Acid.—Berk and his co-workers review observations on 12 patients with pernicious anemia who were treated with synthetic pteroylglutamic acid (folic acid). The dosage was 10 mg. intramuscularly daily during the initial stages of the response, during which time the patients were given a diet containing no meat, fish, eggs or other recognized hemopoietically active substances. This was followed by maintenance with 75 mg. intramuscularly once a week during which no dietary restrictions were imposed. The reticulocyte responses and initial rises in red cell count and hemoglobin were comparable to those seen with purified liver extract therapy. Neurologic manifestations developed or progressed in only 1 of 5 patients treated with 75 mg. of folic acid intramuscularly weekly for from eight to seventeen months, but in both of 2 patients who received 50 mg. of folic acid daily orally for six and 11 months respectively. In view of the considerable incidence of neurologic manifestations in patients with pernicious anemia maintained on folic acid this substance probably should not be used as a therapeutic agent in pernicious anemia until at least more is known concerning the nature of this undesirable effect.

Acta Chirugica Scandinavica, Stockholm

97:1-90 (Sept. 30) 1948. Partial Index

*Solitary Pulmonary Abscess Treated by Primary Pulmonary Resection. J. L. Hansen.—p. 1.
Treatment of Congenital Atresia of Esophagus from a Technical Point of View. P. Sandblom.—p. 25.
*Surgical Treatment of Hyperparathyroidism. K. Liavaag.—p. 42.
Surgically Treated Hepatitis. S. Brattström.—p. 55.
Pyelo-Uretero-Cystitis Granularis Sive Cystica. R Skogstad -p. 67.
Hemorrhoids and Cancer. N. Carstam.—p. 71.
Arthroplasty of Knee Joint. E. Platou.- p. 83.

Pulmonary Resection for Solitary Pulmonary Abscess.—Hansen says that lobectomy and pneumonectomy have been generally reserved for complicated cases of pulmonary abscess, whereas solitary abscesses without complications are usually treated by pneumonotomy, which is not always successful. Since secondary lobectomy after pneumonotomy involves considerable risk, and since the risk involved in primary lobectomy has become greatly reduced, the idea has suggested itself of performing this operation as the primary intervention. The author reviews observations on 14 patients with solitary pulmonary abscess who were submitted at once to the radical operation. Pneumonectomy was done in 2, lobectomy in 11 and a partial lobe resection in 1 as the primary surgical intervention without preceding surgical drainage. Two of the patients had cavernous tuberculosis with severe putrid mixed infection dominating the condition. In the remaining cases the following indications existed for radical operation: long duration of the abscess; recurrence, severe pneumonitis and hemoptyses, or a site which rendered pneumonotomy risky. One patient died after the operation. The 2 patients with tuberculosis improved considerably in the course of the first few months, but died about one year after the operation. The remaining patients recovered and became able to work far earlier than if pneumonotomy had been done. Radical operation should be the best treatment where long-existing abscesses are concerned and should be considered in cases of newly developed abscesses localized high up in the axilla, under the shoulder blade, mediastinally or in an interlobar fissure. In the latter cases conservative treatment should, if possible, be extended over several months. Radical operation should be done if the abscess persists or recurs. Radical operation is inadvisable in the acute stage.

Surgical Treatment of Hyperparathyroidism.—Liavaag reports 7 cases of hyperparathyroidism treated at the University Clinic of Oslo from 1938 to 1947. The examination of the blood of these patients revealed high calcium and low phosphorus values. The phosphatase values were increased in 3 patients. Six of the 7 patients had renal stones or calcifications and 5 had skeletal changes. Operation revealed an adenoma in the neck in 4 of the patients; another patient was subjected to a second operation elsewhere and an adenoma was found in the anterior mediastinum. Diffuse hyperplasia of the "water-clear cell" type was found in 2 cases. One of these patients had to be operated on again because the glands on one side only were removed, the condition being interpreted as adenoma. No postoperative deaths occurred. In all patients with adenoma the calcium and phosphorus values returned to normal after the operation. Two patients had slight, transient symptoms of tetany. In 1 of 2 patients with hyperplasia the calcium and phosphorus values did not return to normal until the patient was again operated on. In the other patient permanent tetany developed, because all parathyroid tissue in the neck was removed by mistake. The material seems to confirm the American dualistic concept, according to which adenoma and diffuse hyperplasia of the water-clear cells are differentiated. Frozen section should always be made at the operation. Should a water-clear cell hypertrophy be present, subtotal resection of the parathyroids should be done. In the case of adenoma it will suffice to remove it.

Anales de Medicina, Barcelona

35:43-80 (Feb.) 1948. Partial Index

*Curare in Cerebral Paralysis. J. de Moragas Gallissa.—p. 58.

Curare in Cerebral Paralysis.—De Moragas Gallissa reports favorable, though temporary results, from administration of curare on muscular spasticity of cerebral paralysis in 2 cases. The results were spectacular but transient. It is advisable to use curare and orthopedic gymnastics, which constitute the main treatment.

Nordisk Medicin, Stockholm

39:1703-1754 (Sept. 24) 1948. Partial Index

Spondylarthritis Ankylopoetica (Bechterew's Disease). P. F. Iversen. —p. 1707.
*Osteomalacia of Spinal Column with Special Regard to Results of Treatment. E. Hess Thaysen.—p. 1709.
Basal Metabolism in Obesity in Children. H. O. Mossberg.—p. 1718.
Illegitimate Children, Their Demographic Importance and Their Care. S. Erkkila.—p. 1720.
*Septic Polyarthritis. O. Sylvest.—p. 1725.
Nailing of Spinous Process of Tibia. K. Stray.—p. 1726.
Determination of Sugar in Urine. H. O. Bang.—p. 1727.

Osteomalacia of Spinal Column with Special Regard to Results of Treatment.—In Thaysen's 50 patients, 43 women and 7 men, treated from 1935 to 1946 in Bispebjerg Hospital, the characteristic deformity of the back was seen. Roentgenologic examination as a rule showed pronounced halisteresis. In 24 cases the diet had probably been insufficient in calcium and/or vitamin D for a number of years. Substitution therapy with calcium, usually 10 to 15 Gm. daily, and vitamin D_2, usually 7,000 to 10,000 international units daily, was applied in 44 cases. In 1946 30 patients, 27 women and 3 men, were reexamined. Early and late results were satisfactory; the pain was checked. Most refractory cases were in patients under 60. Other therapy, including physical therapy, was generally without effect. Roentgenologic signs of recalcification were not definitely demonstrable even in patients treated for up to thirteen years; progression seemed to be halted. The patients are believed to represent cases of mild endemic osteomalacia due to nutritional deficiency, but a change in the hormone milieu in older women may pave the way for the development of the disorder, as osteomalacia most often occurs in older women.

Septic Polyarthritis.—In the 3 fatal cases reported by Sylvest in patients with joint diseases, in 2 of whom endocarditis had developed, blood culture revealed Staphylococcus aureus, nonhemolytic streptococci and hemolytic streptococci respectively. In joint sepsis symptoms may occur which occasionally dominate the picture so that clinical distinction between rheumatic fever and sepsis with affection of the joints may be difficult. Study of the records of 73 cases of bacteremia due to hemolytic streptococci, 50 due to nonhemolytic streptococci and 50 due to Staph. aureus showed joint affection in 27 per cent of the first group, 38 per cent of the second group and 38 per cent of the third group, especially the large joints being attacked in the first and third groups and especially the small joints in the second group. Blood culture is recommended in all cases of assumed rheumatic fever in order to disclose possible bacteremia.

Revista de la Asociación Méd. Argentina, Buenos Aires

62:441-509 (Sept. 15-30) 1948. Partial Index

*Pulmonary Echinococcosis: Surgical Treatment. J. A. Taiana, E. Schiepati and R. C. Boragina.—p. 441.
*Trigeminal Neuralgia: Medical Treatment: Study on Ethiopathogenesis. M. C. Blanco.—p. 447.

Pulmonary Echinococcosis.—Taiana and his collaborators operated on 29 patients with pulmonary echinococcosis. General anesthesia with cyclopropane-ether and tracheal intubation are procedures of choice. Approach to the lesion was by posterolateral thoracotomy. In presence of uncomplicated small cysts, the operation consists of cystostomy, removal of the parasite, resection of the adventitia, suture of the bronchi, pulmonary suture and closing of the thorax with temporary drainage. Pulmonary resection is the operation of choice in presence of multiple cysts or a large cyst with bronchopulmonary complications. It consists of a typical lobectomy, ligation of the lung pedicle, bronchial suture and temporary drainage of thorax with continuous aspiration. Resection of the lung by this technic is reliable in preventing postoperative complications.

Therapy of Trigeminal Neuralgia.—Blanco believes that trigeminal neuralgia is an allergic reaction of the nerves to circulating bacterial toxins from a focus of chronic infection. The reaction is conditioned by a deficiency of vitamin B_2. He reports good results from penicillin therapy followed by administration of vitamin B_2 in 24 cases. He advises surgical removal of foci of infection, penicillin and vitamin B_2 therapy. Penicillin is given either in one large dose of 500,000 units or in daily dose of 500,000 units divided into three fractional doses and administered for three consecutive days. Vitamin B_2 is given in 15 mg. daily doses for a week or ten days.

Revista Clínica Española, Madrid

29:357-402 (June 30) 1948. Partial Index

*Streptomycin in Pulmonary Tuberculosis in Children. J. L. Alvarez-Sala Moris and R. Navarro Gutiérrez.—p. 370.

Streptomycin in Pulmonary Tuberculosis in Children.—Alvarez-Sala Moris and Navarro Gutiérrez administered streptomycin to 6 children aged 5 to 15 years with pulmonary tuberculosis. They conclude that the daily dose for children should not exceed 1 Gm. This amount is given in four fractional doses with intervals of six hours. The drug should be given up to a total dose of 60 or 100 Gm. in the course of sixty or one hundred days. In the cases reported by them, streptomycin resulted in a cure of acute miliary tuberculosis in 2 cases. In 3 cases of tuberculosis, of lymph nodes or with infiltration, the course of the disease was favorably modified into the attenuated clinical type of the disease.

Schweizerische medizinische Wochenschrift, Basel

78:1001-1020 (Oct. 16) 1948. Partial Index

*Investigation on Depot Effect of Oil Procaine Penicillin Suspensions. A. F. Essellier, B. J. Koszewski and F. O. Gundersen.—p. 1001.
*Course of Acute Primary Pneumonia Under Chemotherapy. A. Stärkle.—p. 1004.
Early Stage of Syphilitic Aortitis and Its Detection. L. Lazarovits.—p. 1009.

Depot Effect of Procaine Penicillin Suspensions.—Essellier and his co-workers determined the penicillin titer in the serum of 59 afebrile persons with normal kidneys, in 10 febrile patients and in 7 afebrile patients with renal insufficiency to whom intramuscular injections of a procaine salt of penicillin G in sesame oil were given. In 20 of the 59 persons after one injection of 1 cc. of a suspension of 300,000 units of this preparation an effective therapeutic concentration of penicillin—i. e., a titer above 0.03 unit per cubic centimeter—was obtainable on an average for thirty hours with extreme duration values of fifteen to over thirty-six hours. In 14 patients after one injection of 400,000 units of the drug a prolongation of the action of the drug was not obtained, while in 8 patients after one injection of 600,000 units of the drug the duration of its action was prolonged to forty-eight hours. In the 10 febrile patients and in the 7 afebrile patients with renal insufficiency after one injection of 300,000 units of the drug the same effective therapeutic concentration of penicillin was obtainable on an average for over thirty-six hours, with extreme duration values of twenty-one to over thirty-six hours in the first group and of thirty to over forty-eight hours in the second group. The clinical results in 44 patients, 18 with pneumonia, 2 with empyema, 11 with cystopyelitis, 3 with furunculosis, 3 with sore throat, 4 with erysipelas, 2 with endocarditis lenta and 1 with sepsis produced by staphylococci, treated with procaine penicillin G suspensions, were not inferior to those obtained with water-soluble penicillin. Determinations of the titer and clinical experience revealed that in the majority of cases of febrile diseases produced by infection with bacteria sensitive to penicillin, one intramuscular injection of 300,000 units per cubic centimeter of procaine penicillin daily gives a satisfactory therapeutic effect. Severe cases and particularly cases of endocarditis lenta and septic states may require one daily injection of 600,000 to 900,000 units of the drug. The preparation is well tolerated, the injections are painless. Blood eosinophilia may develop. The administration of suspensions of procaine penicillin G in oil is to be considered the most useful method of administration of penicillin.

Acute Primary Pneumonia.—Stärkle reports 196 patients with acute primary pneumonia, caused by pneumococci in the majority of the cases. Administration of sulfonamide compounds is the method of choice in the treatment, while the effect of penicillin in pneumococcus pneumonia is not superior to that of the sulfonamide drugs. Complications, advanced age of the patient and delayed treatment may require additional treatment for which penicillin is to be preferred. This combined treatment is particularly indicated in secondary pneumonias with mixed infections. The pyrimidine preparations are the most effective among the sulfonamide compounds; 0.1 Gm per kilogram of body weight every twenty-four hours, for nine to seventeen days, proved to be adequate. Recurrences were observed in 4 patients (2 per cent). Discontinuation of chemotherapy before the seventh day of the disease, during a phase before immunity is established, may explain the tendency to recurrence. The return of the temperature to normal is not related to the day of the disease when chemotherapy was instituted. Death occurred in 8 cases (4 per cent). The mortality was thus reduced to from a half to a quarter of that which existed prior to chemotherapy. There were 8 cases of empyema and 2 cases of lung abscess. Forty-nine patients (25 per cent) had a serous pleural exudate. This incidence is similar to that of the period before chemotherapy was practiced. The sulfonamide compounds do not exert any effect on this exudate. Resolution of the pneumonic consolidation occurred within three weeks in 157 patients and within four weeks in 13 patients; resolution was delayed for more than four weeks in 11 patients (6 per cent). Chemotherapy did not shorten the time of resolution except in those cases in which treatment was instituted before the exudation of fibrin began. Early resolution depends primarily on individual factors, especially on the youth of the patient, while delayed resolution is caused by extrapulmonary factors such as chronic alcoholism and cardiac disease.

78:1021-1040 (Oct. 23) 1948. Partial Index

*Treatment of Cardiac Disorders by Administration of Hellebrine, Glucoside of Hellebore. W. Löffler, A. F. Essellier and A. Pedrazzini.—p. 1021.
Presentation of Bronchial Tree by Water-Soluble Contrast Medium. F. K. Fischer.—p. 1025.
Contribution of Technic of Bronchography with Water-Soluble Contrast Medium Joduron-B. F. K. Fischer and K. Mülly.—p. 1033.
Contribution to Transthoracic Resection of Carcinoma of Lower Third of the Esophagus. E. Kaiser.—p. 1035.
Surgical Treatment of Rectal Carcinoma. W. Iff.—p. 1039.
Black Tongue as Sign of Nutritional Deficiency in Man. T. Doxiades and M. Tiliakos.—p. 1041.

Hellebrine in Cardiac Disorders.—Löffler and his co-workers treated 71 patients with decompensated heart, the majority of whom were aged over 50, by one subcutaneous injection of 0.3 to 0.5 mg. of "helborside" daily for eight to fifteen days. Treatment may be continued with two to three injections per week. "Helborside" is an aqueous solution of hellebrine, an extract of the root of Helleborus niger. The main clinical effects of the drug in the order of their appearance were as follows: frequent and early subjective improvement with reduced dyspnea, slowing of the pulse, increased diuresis and disappearance of signs of pulmonary stasis and hepatic congestion. The drug was well tolerated in the majority of the cases. Treatment must be discontinued in cases in which vomiting, heterotopic ventricular extrasystoles, bigeminy or disturbances of the auriculoventricular conduction occur. Rigid rules cannot be applied to the treatment with hellebrine. The disturbances of rhythm which may occasionally result require control of the pulse and cardiac action before and after each injection of the drug. Because of its rapid effect hellebrine is indicated particularly in cases of excitomotor decompensation resulting in acute left ventricular decompensation in which a rapid but not an immediate effect is required; in the latter case strophanthin or ouabain may be preferred. Because of the pronounced effect of hellebrine on the cardiac rhythm it is useful in all cases of tachycardia regardless of their nature, but caution is required in cases of tachyarrythmia with ventricular extrasystole.

Book Notices

Zinsser's Textbook of Bacteriology: The Application of Bacteriology and Immunology to the Diagnosis, Specific Therapy and Prevention of Infectious Diseases for Students and Practitioners of Medicine and Public Health. Revised by David T. Smith, M.D., Professor of Bacteriology and Associate Professor of Medicine, Duke University School of Medicine, Durham, N. C., and others. Ninth edition. Fabrikoid. Price, $10. Pp. 992, with 251 illustrations. Appleton-Century-Crofts, Inc., 35 W. 32nd St., New York 1, 1948.

The former eight editions of this book had Dr. Zinsser as one of the editors. With the passing of Dr. Zinsser, the book is dedicated to the previous authors, Hiss, Zinsser and Bayne-Jones, and now is revised by a team of seven authors from the faculty of Duke University.

The outline and arrangement are similar to those in the eighth edition. A section on antibiotics is added and the discussion on sulfonamide compounds is enlarged. A chapter on pleuropneumonia organisms has been added. An introductory paragraph to chapters dealing with specific infections emphasizes the public health aspects of the disease. Much recent material is added. The sections on bacterial metabolism, immunology, fungus and viral diseases have been rewritten. One hundred and eighty-two new illustrations have been added including electron micrographs of bacteria and viruses.

Some chapters have had slight if any revision. For example, the chapter on bacterial ecology and flora of the normal body has not been brought up to date. The closing paragraph of this chapter refers to important developments which were under way when the last edition was prepared. Only three pages are devoted to classification in chapter 10.

In chapter 11, entitled "Pathogenicity and Virulence," on page 140 the following statement is made: "However, in our opinion, a virulent organism should be considered as one which possesses the power to produce disease even when introduced in extremely small doses—in fact, virulence can be measured only in terms of the number of organisms which must be introduced to cause disease." In two paragraphs below this statement on the same page, under the heading "Toxin Production," the following statement is made: "In some diseases such as botulism and tetanus, the virulence of the bacterium is dependent almost exclusively upon its ability to produce exotoxins."

In chapter 32, on "Salmonella and Salmonellosis," page 443, the following statement is made: "In recent years, however, typhoid fever has been brought under control by means of sanitary engineering and active immunization programs, while the diseases produced by the other 150 species of the Salmonella group have become relatively more frequent." Since the typing of Salmonella is comparatively recent and the reporting of Salmonella infections, at least with the lesser pathogenic species, is incomplete, there is doubt as to whether some of the Salmonella infections are becoming more frequent.

In view of the stupendous task of revising a book of this magnitude, the number of errors are few, and, in general, controversial issues are presented without bias. The book can be highly recommended as a textbook for medical students. The printing is good and the illustrations are excellent. Each chapter is well documented with a bibliography.

Direct Electrocardiography of the Human Heart and Intrathoracic Electrocardiography. By Franz M. Groedel, M.D., Attending Cardiologist, Beth David Hospital, New York, and Paul R. Borchardt, M.D., F.C.C.P., Attending Physician, St. Anthony's Hospital, New York. Cloth. Price, $9. Pp. 224, with 67 illustrations. Brooklyn Medical Press, Inc., P. O. Box 99, Station H, New York 25, 1948.

The basis of this book is the examination of intrathoracic electrocardiograms obtained by the closed method in 100 patients on whom pneumonolysis was performed, and, in addition, similar electrocardiographic data obtained by the open method. This gave the authors the opportunity of obtaining the configuration of the human electrocardiogram at the surface of the auricles and ventricles as well as that over the great vessels, diaphram and lungs.

The monograph crystallizes the recent work of the authors and documents these methods and findings in detail. The format is excellent and the profuse illustrations are well reproduced. They form a valuable addition to the data on electrocardiography which helps to round out data obtained by the customary methods and more recently by intracavity leads.

The literature is adequately covered, but one is left with the impression that the major contributions in electrocardiography have been made by the senior author and his associates. The reviewer has little disagreement with the factual data presented, but takes sharp exception to some of the authors' conclusions drawn as to the theory of the genesis of the electrocardiogram. The last two chapters of this monograph are complex, polemic and at times illogical. There seems little justification at this late date to revive, as the authors have done, the long buried duality theory of the electrocardiogram even in modified form. The monograph is recommended for the cardiologist because of the excellent documentation of the electrical changes occurring during the heart cycle within the chest and also as a warning of the pitfalls inherent in this type of *a posteriori* deductions.

Strabismus: A Clinical Handbook. By George J. Epstein, B.A., M.D. Fabrikoid. Price, $5. Pp. 214, with 76 illustrations. The Blakiston Co., 1012 Walnut St., Philadelphia 5, 1948.

In this small volume the author feels that "although the literature in periodicals on all phases of strabismus is abundant, the necessity exists for the organization of our current knowledge and beliefs into a treatise which shall present the subject with a maximum of conciseness and clarity, and yet afford ample coverage of the field." Certainly the book fulfils this goal. Controversial theories are considered in detail and methods for the correction of strabismus are ably enunciated.

In the preface the author states that "To the pediatrician or general practitioner at whose door the cross-eyed child frequently knocks first, a study of the methods of diagnosis, differential diagnosis and the indications for treatment may be of value. Particularly is this the case in the light of the belief held by the overwhelming majority of ophthalmologists that the diagnosis of strabismus must be made, and its treatment instituted, as early in life as possible." This phase of the book could be improved, particularly in view of the fact that the pediatrician and general practitioner need shock to change ideas which they have been taught for years.

The format is excellent, the chapters outlined in advance, the illustrations are excellent, references terminate each chapter and an ample index ends the contents of the book. Dr. Epstein has accomplished a good work.

Die primäre Tuberkulose bei Erwachsenen und Kindern und ihre Entwicklung. Von Dr. Med. St. J. Leitner, Privatdozent für innere Medizin der Universität Bern, unter Mitarbeit von Dr. R. M. Steinmann. Paper. Price, 15 Swiss francs. Pp. 157, with 32 illustrations. Hans Huber, Marktgasse 9, Bern 16, 1948.

This volume contains an extensive discussion of the evolution of primary tuberculosis in adults and children. The author presents the results of investigations of 160 adults and 106 children with recent primary tuberculosis. The patients were followed from two to eight years after their first admissions to hospitals. This is a selected group because all were hospitalized and therefore are not comparable to persons who contract primary tuberculosis but do not require hospitalization or medical care. The author does not state whether his patients had been on routine tuberculin testing schedules before they became infected so as to know approximately when the primary infection occurred. This information is essential to the study of the evolution of tuberculosis in every case. Without it one cannot be certain whether the lesions found among those ill from tuberculosis are of the primary or reinfection type of disease. All of Dr. Leitner's patients were reactors to tuberculin at the time that he saw them with symptoms or other demonstrable findings. He states that under favorable circumstances the symptoms subsided and sedimentation rates and blood pictures became normal in four weeks. However, no improvement was seen in this time as manifested by roentgen shadows. Disappearance of shadows usually took several months or even years. He believes that hospitalization should not be discontinued until there is definite decrease of the roentgen findings.

Erythema nodosum occurred in 33.7 per cent of the adults and in 6.6 per cent of the children. This is an interesting observation and is similar to that reported by several Scandinavian authors. It differs widely from observations made in the United States, where erythema nodosum has been reported as a relatively rare finding among children and adults with recently developed primary tuberculosis. Dr. Leitner points out that erythema nodosum is not always the result of primary tuberculosis, but he believes this disease should be considered in every case. Pleurisy with effusion is reported in 31.8 per cent of adults and 21.7 per cent of the children in Dr. Leitner's group. Apparently this condition also occurs less frequently among those who contract primary tuberculosis in the United States. Several important aspects of the development of the reinfection type of tuberculosis are discussed, such as hematogenous spread and exogenous reinfection.

Thirty-two good illustrations are included, mostly reproductions of roentgenograms. More than 300 references to the literature are listed. This book is well written and is thought provoking, since it includes several highly controversial subjects. However, much of the controversy may be due to unlikeness in the material which various authors present, dissimilarity in prevalence of the disease in the places where they work and differences in interpretation of findings, rather than to inherent variations in the disease itself.

Functional Neuro-Anatomy. By A. R. Buchanan, M.D., Professor of Anatomy, University of Colorado School of Medicine, Denver. Fabrikoid. Price, $6.50. Pp. 242, with 199 illustrations. Lea & Febiger, 600 S. Washington Square, Philadelphia 6, 1948.

This is an excellent text on neuroanatomy. It is labeled functional and justifiably so because the author has arranged and discussed the various structures as one meets them. These discussions are complete for each tract that the reader meets, and therefore the student is made acquainted with all the various parts of each pathway at one and the same time. This style of text writing is much more practical than the older method of describing various topographic levels. The book contains 242 pages and has 199 illustrations. The reading is very easy and the language is extremely simple. The student needs no dictionary to understand fully this important part of neurology. There are 29 chapters, starting with the development and histogenesis of the nervous system and ending with a chapter on the interstitial tissue of the central nervous system. This is the first edition of the author's mimeographed syllabus which has been available to his students in neuroanatomy. The book is highly recommended for all medical students, neuropathologists, clinical neurologists and neurophysiologists. It is one of the best texts in neuroanatomy.

A Practical Manual of Diseases of the Chest. By Maurice Davidson, M.A., M.D., F.R.C.P., Physician to the Brompton Hospital for Consumption and Diseases of the Chest, London. Oxford Medical Publications. Third edition. Fabrikoid. Price, $16.50. Pp. 670, with 269 illustrations. Oxford University Press, 114 5th Ave., New York 11; Amen House, Warwick Sq., London, E.C. 4, 1918.

The third edition of this excellent book brings the reader up to date on almost all phases of chest disease work. A sizable number of new illustrations have been added, and various new developments have been included since the second edition was published in 1941. The third edition contains two new chapters, one on sarcoidosis and the other on pulmonary cysts. The first section of the book consists of chapters on anatomy and physiology of the respiratory system, radiology, the relation of chest disease to general medicine and pathology, and systematic examination in diseases of the chest.

In appropriate sections all of the diseases attacking the organs of the upper respiratory tract, the lower respiratory tract, the lungs, pleura and mediastinum are presented with reference to diagnosis, treatment, prognosis and prevention.

In the section on diseases of the lungs, the pneumonias, pulmonary fibrosis and the pneumonoconioses are discussed in separate chapters. Five chapters devoted to pulmonary tuberculosis contain excellent presentations of pathology, etiology, epidemiology, diagnosis, treatment and prevention.

The sections on intrathoracic suppurations and new growths contain good chapters on empyema, abscess, various malignant conditions, as well as cysts of the lungs and pleura. This book of 670 pages, with 268 excellent illustrations, contains so much new material and such a valuable store of fundamental information that it should be available to all physicians working in the field of diseases of the chest.

Radioactive Indicators: Their Application in Biochemistry, Animal Physiology, and Pathology. By George Hevesy. Cloth. Price, $10. Pp. 556, with 97 illustrations. Interscience Publishers, Inc., 215 Fourth Ave., New York 3, 1948.

According to the preface, this book was written in the Institute for Theoretical Physics of the University of Copenhagen and the Institute for Research in Organic Chemistry of the University of Stockholm; it was completed in the Donner Laboratory of the University of California. It presents the amazing array of facts that have been learned but recently by the use of radioactive tracer substances in chemistry and biology. Despite the amount, variety and newness of this information, it is presented coherently, readably and with the exactness of detail that is in the best European tradition.

The following are the larger divisions of the text: production of radioactive isotopes; list of radioactive isotopes of possible interest in tracer work; atomic interchange; applications in chemical analysis; absorption, distribution and excretion of elements; permeability of phase boundaries; turnover studies; path of intermediary reactions; skeleton metabolism; biochemistry of red corpuscles; shortcomings of radioactive indicators. A Segré chart, to be found in a pocket inside the back cover, repays careful study, for it orients all the stable and radioactive isotopes with respect to each other and presents the new artificial elements in an instructive light. Illustrations include a number of radioautographs. The text includes many items of special interest such as the pharmacology of plutonium. There are good subject and author indexes. The quality of the printing is excellent and the appearance of the entire book attractive. The book will be found interesting by the general reader and of permanent value to the specialist.

A Short Practice of Surgery. *By Hamilton Bailey, F.R.C.S., F.A.C.S.,* F.I.C.S., Surgeon, Royal Northern Hospital, London, and R. J. McNeill Love, M.S., F.R.C.S., F.A.C.S., Surgeon, Royal Northern Hospital. With pathological illustrations by L. C. D. Hermitte, M.B., Ch.B., Pathologist, Royal Infirmary, Sheffield. Part Two. Eighth edition. Cloth. Price, £2.12s.6d per set of 5 parts. Pp. 225-420 with 260-530 illustrations. H. K. Lewis & Co., Ltd., 136 Gower St., London, W.C. 1, 1948.

The seventh edition (1946) of this book was presented in one rather large volume. The eighth edition is now being published in five parts, part II of which is available for review. This includes the part of the book dealing with the gastrointestinal tract (excepting rectum and anus) and the peritoneum. The smaller volumes are easier to handle than one large volume, but this advantage might be offset by increased difficulty in looking up specific subjects. The new edition has been brought up to date by inclusion of such subjects as vagotomy for peptic ulcer, transthoracic approach to lesions of the cardia and esophagus, esophageal atresia of the newborn, esophagogastrostomy for cardiospasm, newer hepatic function tests and portocaval shunts for portal hypertension.

Outline of Physiology. By William R. Amberson, Ph.D., Professor of Physiology, University of Maryland, Baltimore, and Dietrich C. Smith, Ph.D., Associate Professor of Physiology, University of Maryland Second edition. Cloth. Price, $5. Pp. 502, with 193 illustrations by Norris Jones and William Loechel. Williams & Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2, 1948.

This is an excellent, brief, sometimes too elementary text which starts out to be a treatise on general or comparative physiology but finally evolves into a stimulating presentation of elementary human physiology, although some of the material is a bit profound for the reader who is best able to profit by its use. Textual matter is sound and reserved. The book can be recommended highly for college classes and even in some sections as supplementary reading for medical students.

A Brief History of the South Carolina Medical Association to Which Are Added Short Historical Sketches of Various Medical Institutions and Societies of South Carolina. Published by the South Carolina Medical Association at its Centennial Meeting, Charleston, 1948. Cloth. Pp. 197, with illustrations. South Carolina Medical Association, Charleston, 1948.

This brief sketch of the history of the South Carolina Medical Association is of particular interest to the physicians of South Carolina for whom it was prepared as a part of the centennial celebration of that state association. It is a valuable addition to the literature on the history of the medical profession in the United States.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request

TIME OF OVULATION

To the Editor:—I have been consulted by a young married woman relative to avoidance of pregnancy. Both she and her husband have religious scruples regarding use of contraceptives. Her menses are irregular and occasionally she will skip a month or two. She has tried to determine times of ovulation by taking rectal temperatures but with indefinite results. I have been under the impression that the ten days immediately preceding menstruation was a relatively safe time for intercourse but as beginning of menstruation is unpredictable this does not help. Is there definiteness regarding time of ovulation following a menstrual period?

M.D., Alabama.

Answer.—Ovulation is associated with the menstrual period which follows and not with the one which precedes it. Ovulation occurs about fourteen days before the onset of the following menstrual bleeding in most women. In those who menstruate from twenty-six to thirty days, an ovum is extruded from the ovary sometime between the tenth and the seventeenth day of the cycle. These days are the so-called fertile days and are to be avoided by women who practice the rhythm method of conception control. Women with cycles which differ from the twenty-six to thirty day type must calculate the days when ovulation can occur and, of course, these days are different from those for women who have a twenty-six to thirty day cycle. There are various ways of trying to determine the day of ovulation in this case. 1. Examination of the endometrium. It is generally believed that the changes in the uterine endometrium indicate accurately what is going on in the ovary. Whereas in nearly all cases the finding of luteal endometrium by biopsy or curettage indicates that ovulation has taken place, it is extremely difficult to determine the exact day when it took place. Even if this could be determined, it would not follow that ovulation would take place in subsequent months on the same day. 2. Hormone studies of the blood and urine. Kurzrok claims that there is a rise in gonadotropin excretion twenty-four hours before ovulation, and D'Amour observed an increase in this hormone between the twelfth and the sixteenth day before the onset of bleeding. In many cases there was a second rise just before menstruation began. There were also two peaks of estrogen output which usually preceded the increase in gonadotropin. Venning and Browne found that excretion of pregnandiol, an excretion product of progestin, rose to a plateau after ovulation and then fell abruptly just before the onset of flow. Further studies are necessary before these hormone studies can prove useful. 3. Pommerenke and Viergiver determined the length of the ovulatory phase in the normal menstrual cycle on the basis of the increased quantity and decreased cellularity of the cervical mucus secreted at this time. This phase of increased secretion was found to vary from three to seven days in length and to occur later in cycles of longer length. The shift in basal temperature was found to occur, with rare exceptions, only during this phase of increased mucous secretion. The day of maximal mucus production usually occurred sixteen to twelve days before the onset of the subsequent menstrual period regardless of the length of the cycle. A study of the cervical mucus cycle together with the basal temperature is suggested as a possible aid in planning pregnancies. 4. Vaginal smear. Papanicolaou claims that the vaginal epithelium of human beings, like that of many laboratory animals, undergoes cyclic changes during the month. However, not all agree that such changes can be detected regularly; therefore the study of vaginal smears, although of value, has limited applicability.

D'Amour, who has done considerable work in endocrinology, studied 20 menstrual cycles in 5 women, using concurrently four to six of the following sources of information: gonadotropin assay, estrogen assay, pregnandiol determination, vaginal smears, body temperature and subjective experiences. The purpose was to evaluate the validity of the tests on the basis of uniformity in the occurrence of positive responses and synchrony of their appearance. It was concluded that (1) subjective experiences were valueless as tests for ovulation; (2) body temperature fluctuations were not sufficiently regular or clearcut to be reliable; (3) uniformity of results of hormonal assays and vaginal smears confirmed the validity of each, and a certain sequence of events appears typical of the normal cycle, and (4) because of its sharpness and its apparent close association with ovulation, the gonadotropin peak, occurring in the midinterval, is most indicative of the exact time of ovulation.

Obviously it is not easy to tell the exact day of ovulation. Recently, D. P. Murphy and E. J. Farris (The Journal, Sept. 4, 1948, p. 13) reported excellent results with artificial insemination based on Farris' rat ovulation test. The exact day of ovulation is determined by the injection of the wife's urine into immature female white rats of the Wister strain.

TALCUM POWDER DUST

To the Editor:—What are the dangers of exposure to moderate amounts of talcum powder dust by inhalation? I refer to air breathed by operating room helpers engaged in powdering surgical gloves. M.D., New York.

Answer. — Prolonged exposure to talcum powder dust in sufficient concentrations is capable of producing a disabling pneumonoconiosis. In a study of 221 men in the mining and milling industry in northern New York reported by W. Siegal, A. Smith and L. Greenburg (*Am. J. Roentgenol.* **49**:11, 1943) advanced fibrosis was found in 32 men, all of whom had worked in tremolite talc for ten years or more. The fibrosis was a fine diffuse type with a roentgenographic appearance of granulation or nodulation on a hazy background. It was frequently accompanied by dyspnea, cough and fatigue. There was some evidence that fibrosis was characterized by an increased susceptibility to tuberculosis.

N. Millman reports in *Occupational Medicine* (**4**:391, 1947) a case in which exposure to talc in the cosmetic industry caused generalized pneumonoconiosis of a nodular type. The man had been exposed to the atmosphere of talcum powder-mixing rooms of cosmetic plants for twenty-four years. The dust count in the general atmosphere of the powder mixing department in one plant studied ranged from 15,900,000 particles to 236,000,000 particles per cubic foot of air. At the 1947 meeting of the American Conference of Governmental Industrial Hygienists, the Committee on Threshold Limits recommended that the amount of talc in the working atmosphere based on an eight hour working day not exceed 20,000,000 particles per cubic foot of air.

Although the inhalation of talc dust is a potential industrial hazard, working conditions of operating room helpers do not parallel those of miners and millers. The rotation of personnel and the few hours spent in powdering gloves eliminate most of the danger. Periodic physical examination and roentgenograms of the chest are urged for all persons who are exposed for prolonged periods. Suspected dust hazards should be controlled.

CONGENITAL IMPETIGO

To the Editor:—A 24 year old white housewife expects to be delivered of her third child in April 1949. Her first infant died at one month of "congenital impetigo." The second infant was born unattended at term and had impetiginous lesions of its nail beds which later spread to involve most of the body orifices (nares, ears and genitalia). The lesions were diagnosed as pemphigus neonatorum (Ritter's). The infant did fairly well under a high vitamin and caloric regimen with penicillin ointment and methylrosaniline chloride locally, only to succumb to bronchopneumonia at 5 months. All present findings are normal. Do you consider cesarean section justified in this case? M.D., Maryland.

Answer.—Since there is a possibility that the mother's vagina may harbor staphylococci and streptococci which may be the cause of the "congenital impetigo" in the first baby and the pemphigus neonatorum in the second, studies should be made of the bacterial flora of the vagina. Intravaginal medication should be of considerable help in bringing about the removal of harmful bacteria. It is much better to use vaginal suppositories of penicillin than vaginal instillations of merbromin N. F. (mercurochrome®). There is no need to perform a cesarean section on this patient to avoid infection of the child.

FLUORESCENT LIGHTING AND ALOPECIA

To the Editor:—What are the possibilities of fluorescent lights' producing irritation of the scalp and alopecia? In a reconverted war plant where a number of men and women do clerical work, 1 of my patients states that several of the workers are experiencing such difficulties, and she is losing her hair at an excessive rate. O. S. Philpott, M.D., Denver.

Answer.—Evidence for suspicion that exposure to fluorescent light causes dermatitis of the scalp and alopecia is lacking. The energy from a fluorescent lamp is just visible energy, no different from that of other lighting lamps, and the glass used is like ordinary window glass.

RESTING AFTER MEALS

To the Editor:—The following is a quotation from an article in a newspaper. Is there any scientific basis for it? "A nap at midday or immediately after evening meal is all right for adults up to middle age, especially for those who do real physical work. It is not so good for elderly adults and especially for those who are of *sedentary habit* and those who carry a handicap of slacker flesh. The reason why it is a bad habit for the sedentary, overfed, elderly person to nap after dinner is because it predisposes to cerebral thrombosis from slowing of the *circulation.*"
P. J. Imperato, M.D., Brooklyn.

Answer.—It is in general true that recumbency with sleep immediately after meals is less satisfactory than rest in such a position before meals. This is particularly true in older persons and in fact is an old medieval rule of health which still holds. The recumbent position is less satisfactory for the circulation than the upright position and the increased activity of the digestive tract after meals is best carried out in the upright seated position.

HYDROTHERAPY IN PSORIASIS

To the Editor:—A patient with fracture of the right humerus was treated last year. This patient had psoriasis of the elbows. At the time the patient returned to Boston he was at the stage of bony union where physical therapy and hydrotherapy were indicated. He received this treatment, including the whirlpool for the right arm, all summer while at home. He returned to me with the right elbow (the fractured member) completely healed with healthy skin. The left elbow was at the same stage as when seen at the last visit. *Could the whirlpool be the reason for* the improvement?
A. R. Taylor, M.D., Fort Lauderdale, Fla.

Answer.—The whirlpool bath undoubtedly exerted a beneficial effect in this case, but the principle of such treatment is not new. Many dermatologists recommend to patients with psoriasis that they "soak in a tub" daily and for prolonged periods prior to applying their salves. It has been a practice for many years.

WEIGHT OF ANATOMIC STRUCTURES

To the Editor:—What are: (1) the approximate weight of the total skeletal *muscles in a human adult; (2) the approximate weight of the skeletal* system in a human adult; (3) the approximate weight of the integument, or skin, and (4) the approximate weight of the total nervous system, including the brain?
David I. Macht, M.D., Baltimore.

Answer.—There are many variations. Anatomists report average approximate weights in a strong adult man of good proportions and good health, weighing 150 pounds as follows:

	Weight, Pounds	Percentage
Skeletal system, fresh	24	16
Skeletal muscles	60	40
Skin alone	7½	5
Attached subcutaneous tissue	15	10
Nervous system, including brain, cord and nerve stems but not membranes or intramembranous fluid outside brain and cord	3⅜	2¼

VITAMIN E IN DIABETES

To the Editor:—A diabetic patient referred me to the article entitled "New Diabetes Treatment with Vitamin E" in the December issue of *Magazine Digest*. What further information can you supply regarding the value of *this medication? Information on this subject comes from the Shute Insti*tute for Clinical and Laboratory Medicine, London, Ontario, Canada.
Albert Tormey, M.D., Madison, Wis.

Answer.—Several papers have been published from the Shute Institute suggesting advantage from the use of large doses of alpha-tocopherol in the treatment of vascular disease. Confirmatory reports from other centers have not come to our attention. The observations commented on in the *Magazine Digest* have also not been confirmed. Until such confirmation has been obtained the routine use of alpha-tocopherol in the treatment of diabetes is not recommended.

PROCAINE PENICILLIN IN CHILDREN

To the Editor:—Is there objection to giving almost an adult dose of penicillin in wax and oil to a baby a few months of age? If a procaine preparation is used what is the dose for children? Has the procaine preparation produced bad reactions?
M.D., Pennsylvania.

Answer.—The usual dosage of penicillin in wax and oil is 300,000 units contained in 1 cc. This dosage in a baby a few months of age, injected intramuscularly, would probably produce a high blood level. A smaller dose for such an infant could probably be depended on unless the infection for which the penicillin was used was of particular virulence or severity.

The newer preparation, procaine penicillin, which is a chemical compound suspended in oil and is free flowing because it contains no wax, may be used in infants and children in the following dosage: Infants from birth to one year, ½ cc. or 150,000 units, and in children 1 year and over, 1 cc. or 300,000 units. These dosages have shown adequate penicillin blood levels over twenty-four hour periods. Procaine penicillin preparations have not led to bad reactions. As wax is lacking in this preparation, local nodules do not occur.

HERPES SIMPLEX IN MENSTRUATION

To the Editor:—A woman, aged 40, has had what seems to be recurrent herpes simplex of the right buttock for two years. Recurrences coincide *each month with the menstrual period.* There is usually a sudden onset shortly before the menses with aching and pain radiating down the right leg followed by the appearance, at onset of menstruation, of a small group of superficial vesicles on a reddened base. After a day or two the *ruptured* vesicles become covered with a thin, straw-colored or bloody crust. This gradually disappears, leaving a reddened area which gradually fades. Her greatest discomfort occurs before the eruption appears. Recurrences are always in an area about 2 inches (5 cm.) in diameter, and on several occasions the recurrence has been in the identical site of the previous lesion. The lesion is usually ⅜ to ½ inch (0.96 to 1.27 cm.) in diameter. At times the lesions occur after the menstrual period or precede it. *The patient has had an occasional herpes of the lips for* many years.

Past history reveals Parinaud's conjunctivitis two years ago; acute vertigo, tinnitus and sudden deafness in right ear ten years ago, and frequent atypical migraine headaches and some mild tinnitus and vertigo on occasion. Menses are regular and normal. She has never been pregnant. The pupil of the right eye has been larger than the left for several years. Treatment has consisted of fifteen smallpox vaccinations at one to two week intervals; ten injections of 5 cc. of her own blood into the gluteal muscles; local application of thiamine in glycerin and oral administration of thiamine. Treatment has not altered the course or recurrence.

Please suggest treatment.
M.D., Kentucky.

Answer.—One must always give consideration to an endometrial implant such as has been recently reported by Schlicke in The Journal (132:445, 1946). Biopsy of the area would aid in making a correct diagnosis. A more likely possibility is that the acute vertigo, tinnitus and sudden deafness could have been symptoms of Ménière's disease and that the patient now has a histaminic reaction which manifests itself as described. The patient should be desensitized to histamine according to the technic of Horton and adjusted to a maintenance dose. This should bring regression of the symptoms. The third possibility is sensitivity of the patient to her own estrogen. Large doses of vitamin B might aid in controlling this situation. Depression of the menstrual periods produced by large dosages of estrogen or androgen would aid in measuring the role of the menstrual flow in the occurrence of these lesions.

THROBBING SENSATIONS IN THE HEAD

To the Editor:—A white male patient, age 48, of professional occupation, complains of throbbing or pulsations in the head, neck and chest while sitting down. In the last two years he noticed that while relaxing in a *chair or in bed he has a pulsating or throbbing sensation when head is* resting on back of soft chair or on a pillow. No difference occurs in changing position of his head when lying in bed. Blood pressure is 126 systolic and 80 diastolic, pulse rate 80, and lesions of heart, checked by electrocardiogram and other tests, are absent. What is the prognosis and what can be done to help this patient?
M.D., Pennsylvania.

Answer.—Granting that the information as to absence of any lesion of the heart or blood vessels is correct, there seems to be no basis for connecting the symptoms with any other kind of physical pathology. Many persons are inclined to attach too much importance to pulsations and throbbings once they have become accustomed to detecting them. Such a tendency is noted especially in psychoneurotic conditions. Reassurance about the particular symptom may be of some help. Ordinarily, adequate history will reveal other symptoms than the throbbing and will serve as a basis for psychotherapy.

SUSPENSORIES AND SPERMATOGENESIS

To the Editor:—In The Journal, Nov. 27, 1948, *your answer to the query* about the continued wearing of a suspensory states that there should be no deleterious effect on spermatogenesis. This answer is not correct.

We know that in animals with extra-abdominal testes normal body temperature destroys spermatogenesis. That is the reason *that there is* a dartos muscle in the scrotum which relaxes and cools the testes when environmental temperature increases and contracts in the cold. This thermoregulatory function of the dartos is generally recognized today. The wearing of a suspensory annuls this dartos action and is therefore unphysiologic and may allow the temperature of the testes under certain conditions to rise to above that which it should be normally. I have seen spermatogenic function improve with no other treatment than the removal of such a support.
G. L. Moench, M.D., New York.

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SPECIFIC THERAPY OF BACTERIAL INFECTIONS OF CENTRAL NERVOUS SYSTEM

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Therapeutic agents are now available to combat most bacterial infections of the central nervous system. Consequently, proper treatment depends on (1) prompt diagnosis of the disease, (2) prompt determination of the etiologic agent and (3) selection of the appropriate drug or antibiotic. Since such selection depends on the causative organism in any given case, we have arranged the present discussion according to the bacteria responsible for the various diseases.

MENINGITIS CAUSED BY GRAM-NEGATIVE COCCI

Meningococcic Meningitis.—Meningococcic meningitis is the most frequent type of meningitis. Excellent results have been obtained with sulfadiazine or sulfamerazine. The dose for adults is 6 Gm. immediately and 1 Gm. every four hours and for children 70 mg. per kilogram (½ grain per pound) of body weight immediately and 150 mg. per kilogram (1 grain per pound) for each twenty-four hours thereafter, at four hour intervals. Comatose patients should be given an initial intravenous dose of 0.5 per cent solution of the sodium salt in sixth-molar lactate or isotonic sodium chloride solution. Subsequent doses are preferably given by stomach tube or by mouth, since this insures more constant blood levels, although the subcutaneous route may be used instead. Sodium bicarbonate, 6 Gm. at the start and 3 Gm. every four hours, should be used concomitantly in order to minimize the possibility of the formation of renal calculi. We[1] have recently obtained successful results in a few patients with meningococcic meningitis by the use of Nu-445,[2] a sulfonamide drug which is very soluble and has not yet been observed to cause renal calculi. Many more patients will have to be treated, particularly during an epidemic, before it will be possible to say that this drug is as good as sulfadiazine or sulfamerazine.

We have not found it necessary to employ penicillin routinely in meningococcic meningitis except in patients with a fulminating infection (the Waterhouse-Friderichsen syndrome). It is also used in patients who do not respond to sulfonamide drugs within twenty-four to forty-eight hours. Probably the most satisfactory way to administer penicillin for these purposes is in doses of 1,000,000 units intramuscularly every two hours, as will be shown in the discussion on pneumococcic meningitis.

The effects of therapy may be judged by (1) the rapidity of the fall in temperature and decrease in toxicity, (2) the disappearance of the meningococci from the cerebrospinal fluid and the increase in its dextrose content and (3) the decrease in the leukocyte count of the cerebrospinal fluid. Treatment with sulfonamide compounds and penicillin may be discontinued one week after the temperature drops if the patient is doing well in all other respects. The results which we have obtained[3] with this regimen are given in table 1. It will be seen that the fatality rate for all cases was 8.8 per cent and that it increased progressively with age. The fatality rate for comatose patients was double that for the entire series.

Gonococcic Meningitis.—Gonococcic meningitis is a much rarer condition. We have observed only 2 patients since the sulfonamide compounds have been available. Both recovered promptly under sulfonamide therapy. We recommend the same treatment as for the meningococcic type.

MENINGITIS CAUSED BY GRAM-POSITIVE COCCI

Pneumococcic Meningitis.—Pneumococcic meningitis is the most frequently observed disease in this group. The orthodox method of treatment consists of daily intrathecal injections of 10,000 to 20,000 units of penicillin plus sulfonamide drugs and 500,000 to 2,000,000 units of penicillin systemically. Intrathecal administration of penicillin has been considered necessary because many investigators have found that when penicillin is administered systemically, diffusion into the cerebrospinal fluid is irregular or does not occur.

Previous studies in our laboratory[4] have shown that several factors are important in obtaining and maintaining a satisfactory concentration of penicillin in the cerebrospinal fluid: (1) sufficiently large amounts of penicillin must be administered systemically; (2) the penicillin must be given for a certain interval before it appears in the cerebrospinal fluid, and (3) penicillin diffuses into the cerebrospinal fluid more freely in the presence of inflammation. Schwemlein and his co-workers[5] reported that detectable concentrations of penicillin were present in the spinal fluid of patients who received

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From the George Washington University and Georgetown University Medical Divisions and the Contagious Disease Service, Gallinger Municipal Hospital and the Departments of Medicine and Pediatrics, George Washington and Georgetown Universities.

[1] Brickhouse, R. L.; Lepper, M. H., and Dowling, H. F.: Treatment of Various Infections with Nu-445, Am. J. M. Sc., to be published.

[2] Supplied by Hoffmann-LaRoche, Inc.

[3] Zeller, W. W.; Hirsh, H. L.; Sweet, L. K., and Dowling, H. F.: Treatment of Meningitis with Sulfadiazine and Sulfamerazine, J. A. M. A. **136**: 8-12 (Jan. 3) 1948. Sweet, L. K.; Dumoff-Stanley, E., and Dowling, H. F.: Meningococcic Meningitis Treated with Sulfadiazine and Sulfamerazine: A Three-Year Study, Ann. Int. Med. **23**: 338-348 (Sept.) 1945. Lepper, M. H.; Sweet, L. K., and Dowling, H. F.: The Treatment of *Meningococcic Infections with Sulfadiazine and* Sulfamerazine (Sulfamethyldiazine, Monomethylsulfadiazine), J. A. M. A. **123**: 134-138 (Sept. 18) 1943.

[4] Dumoff-Stanley, E.; Dowling, H. F., and Sweet, L. K.: The *Absorption* into and *Distribution* of *Penicillin* in the Cerebrospinal *Fluid*, J. Clin Investigation **25**: 87-93 (Jan.) 1946.

[5] Schwemlein, G. X.; Barton, R. L.; Bauer, T. J.; Loewe, L.; Bundesen, H. N., and Craig, R. M.: Penicillin in Spinal Fluid After Intravenous Administration, J. A. M. A. **130**: 340-341 (Feb. 9) 1946.

20,000,000 units or more of penicillin during the course of twenty-four hours by continuous intravenous injection. We[6] gave 1,000,000 units intramuscularly at two hour intervals to 13 patients with and without meningitis and found that small amounts of penicillin were present in all patients within the first two hours after the first injection. After eight hours the spinal fluid concentrations in the patients with meningitis were between 0.08 and 2.5 units per cubic centimeter. We[6] have treated 22 patients with pneumococcic meningitis with doses of 1,000,000 units every two hours. Three patients also received a single intrathecal injection of penicillin and 12 received sulfonamide compounds. Eight patients died of meningitis, giving a case fatality rate of 36 per cent. This compares favorably with a fatality rate of 62 per cent among the 66 patients previously treated by us with smaller doses of penicillin systemically plus repeated intrathecal injections of penicillin. We therefore advocate as the best treatment for pneumococcic meningitis available today 1,000,000 units of penicillin intramuscularly every two hours. Patients in coma or in extremis when treatment is begun may be given a single initial intrathecal dose of penicillin in addition. Sulfonamide compounds do not appear to be necessary when these doses are used.

TABLE 1.—*Results of the Treatment of Meningococcic Meningitis with Sulfonamide Drugs*

	All Patients			Patients Admitted in Coma		
		Died			Died	
Age	No. Treated	No.	Per Cent	No. Treated	No.	Per Cent
0-9............	47	1	2.1	14	1	7.1
10-19............	52	3	5.8	26	2	7.7
20-29............	66	5	7.6	28	5	17.9
30-39............	65	3	4.6	26	3	11.5
40-49............	28	5	17.9	19	5	26.3
50-59............	20	6	30.0	15	6	40.0
60 +............	17	3	17.6	11	3	27.3
Total..........	295	26	8.8	139	25	18.0

Meningitis Caused by Staphylococci and Beta Streptococci.—Meningitis caused by these organisms is usually treated by multiple intrathecal injections plus systemic doses of penicillin. We have successfully treated 1 patient with meningitis caused by beta hemolytic streptococci with systemic doses of 1,000,000 units of penicillin every two hours and without intrathecal therapy. We have not had an opportunity to treat any patients with staphylococcic meningitis in this manner, but believe that this treatment should be as successful as in pneumococcic meningitis.

MENINGITIS CAUSED BY GRAM-NEGATIVE RODS

Hemophilus Influenzae Meningitis.—This type of meningitis responds well to streptomycin. Infants and young children may be given 1.5 Gm. per day, divided into 4 six hour intramuscular doses. Adults should receive 3 Gm. per day. Daily intrathecal injections of 25 mg. are also given to young children and 50 mg. to older children and adults.

Although streptomycin is usually successful when given alone, we believe that sulfadiazine should be given at the same time because of its effect on H. influenzae, because it may help to prevent the appearance of streptomycin-fast organisms and because it will inhibit the multiplication of gram-positive organisms during streptomycin therapy. The doses should be the same as in meningococcic meningitis.

When treatment is delayed or the patient is critically ill when therapy is started, or if no improvement occurs after forty-eight hours of streptomycin-sulfadiazine therapy, specific rabbit antiserum should be given in doses of 100 to 200 mg. of antibody nitrogen. About 90 per cent of patients will recover when they are treated in this manner.

Meningitis Caused by Other Gram-Negative Rods.—Meningitis caused by other gram-negative rods, such as Escherichia coli, Pseudomonas aeruginosa (pyocyaneus), Klebsiella pneumonia (Friedländer's bacillus) and Aerobacter aerogenes should be treated in the same way as H. influenzae meningitis, except that specific serum would not be used. Since these types of meningitis are often an end stage of an overwhelming infection, the prognosis is uncertain and often depends on factors other than the meningitis itself.

TUBERCULOUS MENINGITIS

The early results with streptomycin in this disease appeared to be excellent. Clinical arrest occurs in one fourth of the patients. The results are especially favorable in patients who had meningitis without miliary tuberculosis. Not all of the patients with arrested disease recover, however. The longer they are followed the higher becomes the percentage of relapses, until now it seems likely that no more than 5 or 10 per cent of patients with tuberculous meningitis will recover completely and most of these will have some permanent neurologic damage. A ray of hope is offered by the results of Lincoln and her associates.[7] They obtained clinical arrest in 6 of 7 patients treated with a combination of streptomycin and promizole® (4,2′-diaminophenyl-5′-thiazolyl sulfone). Prolonged follow-up on these patients as well as further studies on combinations of streptomycin and various antituberculous chemicals will be welcome.

TABLE 2.—*Suggested Treatment for Various Types of Bacterial Meningitis*

Etiology	Sulfonamide Drug	Penicillin	Streptomycin
Gram-neg. cocci Meningococci Gonococci	Sulfadiazine or sulfamerazine systemically	In fulminating infections as for gram-pos. cocci	None
Gram-pos. cocci Pneumococci Beta streptococci Staphylococci	None	1,000,000 units intramuscularly every 2 hours; in comatose patients initial intrathecal injection of 20,000 units	None
Gram-neg. rods H. influenzae * E. coli Ps. aeruginosa and others	Sulfadiazine or sulfamerazine systemically	None	Systemically, 3 Gm./day to adults; 1.5 Gm./day to infants; intrathecally 50 mg./day to adults and 25 mg./day to young children
Tubercle bacillus	None	None	Systemically, 9 mg./Kg./day (maximum 2 Gm.); intrathecally, 1 mg./Kg. (maximum 50 mg.)/day; then on alternate days

* In cases of severe disease, specific serum in doses of 100 to 200 mg. of antibody nitrogen.

Patients with tuberculous meningitis should be treated as early in the course of the disease as possible with intramuscular doses of 9 mg. per kilogram of body weight per day, up to a maximum of 2 Gm., at six hour intervals. Intrathecal doses of 1 mg. per kilogram, up to a maximum of 50 mg., are also given, at first at daily intervals and after two weeks on alternate days. It is usually recommended that treatment be continued for four months, but it is doubtful whether streptomycin is of any value after six to eight weeks. The spinal fluid leukocyte count and protein content are no criteria of recovery. More reliable are the absence of organisms in smear and culture and a return of dextrose content to normal.

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[6] Dowling, H. F.; Sweet, L. K.; Robinson, J. A.; Zeller, W. W., and Hirsh, H. L.: The Treatment of Pneumococcic Meningitis with Massive Doses of Systemic Penicillin, Am. J. M. Sc., to be published.

[7] Lincoln, E. M.; Kirmse, T. W., and DeVito, E.: Tuberculous Meningitis in Children: A Preliminary Report of Its Treatment with Streptomycin and "Promizole," J. A. M. A. 136:593-597 (Feb. 28) 1948.

LOCALIZED INFECTIONS OF THE CENTRAL NERVOUS SYSTEM

The same procedures should be used in the treatment of abscesses as are used in meningitis. The causative organism should be determined and the proper antibiotic or sulfonamide compound should be used. Surgical drainage with local instillation of the proper antibiotic should be employed where advisable.

SUMMARY

The treatment advocated in the various types of meningitis caused by bacteria is outlined in table 2. Meningitis caused by gram-negative cocci is best treated with sulfonamide compounds, penicillin being used as an adjuvant in cases of severe disease. When gram-positive cocci are the cause, penicillin should be given in massive doses systemically. Comatose patients may receive one intrathecal dose at the start of treatment. In meningitis caused by gram-negative rods, sulfonamide compounds should be given in combination with streptomycin. In severe H. influenzae infections, specific serum should be given also. In tuberculous meningitis, systemic and intrathecal administration of streptomycin should be continued for several weeks or months.

ABSTRACT OF DISCUSSION

Dr. Paul S. Rhoads, Chicago: Dr. Dowling emphasizes two procedures which I am sure are not in general use. One is the administration of maintenance doses of sulfonamide drugs in comatose patients by stomach tube after an initial 6.0 Gm. dose of the sodium salt intravenously. I am sure the method accomplishes what he is after—the avoidance of fluctuations in the blood level. Since comatose patients require almost constant administration of fluids intravenously we usually continue the maintenance dose by adding 1.0 Gm. of sodium sulfadiazine to them every four hours or 2.0 Gm. of sodium sulfamerazine every eight hours—and have found that fluctuations in blood level on this schedule are not violent. He spoke of the use of a new sulfonamide drug prepared by the Hoffman-LaRoche Company which is more soluble in the urine than the ones now in general use, and which is not irritating when given intramuscularly as the lithium salt. We have used this drug as the sole antibacterial therapy in 8 cases of meningococcic meningitis and in combination with penicillin in 3 others—and all the patients recovered. Probably when this or other sulfonamide drugs which can safely be injected into the muscle in 20 to 40 per cent solution come into general use the need for administration by stomach tube will be over. The other new departure emphasized by Dr. Dowling is the intramuscular injection of 1,000,000 units of penicillin every two hours in pneumococcic meningitis and certain other severe infections of the central nervous system. By this technic he is able to produce an effective level of penicillin in the spinal fluid in most cases. The results—even without the combined use of sulfonamide compounds—compare favorably with those in any large series of patients with pneumococcus meningitis yet reported. Whether the advantages of this method—which is expensive and requires twelve intramuscular injections each twenty-four hours —outweigh the possible danger of a single intrathecal injection of 10,000 to 20,000 units of penicillin each twenty-four hours I am not prepared to say. In our experience there have been no difficulties with intrathecal administration in this dosage, and we have always found a satisfactory level of penicillin in the spinal fluid twenty-four hours later. I am not quite ready to abandon daily intrathecal injections in patients with a poor prognosis in favor of this method, although I am heartily in favor of larger parenteral penicillin dosage than we have used in the past. In the treatment of meningitis due to H. influenzae I agree that streptomycin is probably the single most effective agent.

Dr. Wesley W. Spink, Minneapolis: In the face of standardized recommendations for treating pneumococcic meningitis, Dr. Dowling and his co-workers are to be commended for withholding the intrathecal injection of penicillin in a significant group of patients. They have shown that the parenteral administration of large doses of penicillin will result in the drug's penetrating the blood-brain barrier and appearing in sizable quantities in the cerebrospinal fluid. This applies to the patient with inflamed meninges, but not to normal persons. I agree with Dr. Dowling that sulfadiazine or sulfamerazine is the drug of choice in the treatment of meningococcic meningitis and that in this infection intrathecal therapy is not necessary. Our group has been interested in the problem as to whether it is mandatory that solutions of penicillin be administered intrathecally for pneumococcic meningitis, as well as being given parenterally. We have not been particularly concerned about the harmful effects of intrathecally administered penicillin, and have observed no undesirable reactions following this procedure. Perhaps this is due to the fact that no more than 20,000 units of penicillin have been injected in 10 cc. of isotonic sodium chloride solution. Until the present time, we have insisted on the intrathecal administration of penicillin as a part of the routine treatment of pneumococcic and staphylococcic meningitis. Recent investigations in our laboratory tend to confirm the conclusion of Dr. Dowling that large amounts of parenterally administered penicillin will result in good concentrations of the antibiotic in the cerebrospinal fluid. In accordance with the suggestion of King and his group at Mount Sinai Hospital in New York, 1,000,000 units of the crystalline sodium salt of penicillin G in 5 cc. of distilled water has been rapidly injected intravenously into each of several human subjects. This procedure will result in blood levels of over 100 units per cubic centimeter. Thirty minutes later one-half this amount is present. In persons with normal meninges, the concentration of penicillin in the cerebrospinal fluid did not exceed 0.5 unit per cubic centimeter at any time, whereas in patients having inflamed meninges, levels up to 8 units per cubic centimeter were attained in the cerebrospinal fluid. Such concentrations would appear to be adequate for eradicating pneumococci from the fluid. Most clinicians are now agreed that in the treatment of tuberculous meningitis streptomycin should be injected into the subarachnoid space as well as administered intramuscularly. There is considerable doubt as to whether it is advisable to introduce more than 25 mg. of streptomycin at any one time, since amounts greater than this have provoked irritation of the meninges.

Dr. William P. Boger, Philadelphia: Dr. Spink indicates that he has confirmed the passage of penicillin into the cerebrospinal fluid, but made the remark that it is difficult to pass a normal blood brain barrier. Recently, we reexamined this point and found that significant amounts of penicillin are found in the cerebrospinal fluid in the majority of normal patients, if 100,000 units of penicillin are administered intramuscularly at three hour intervals. Having demonstrated that in 20 of 25 patients this was true, the rapidity of passage of penicillin into the cerebrospinal fluid was studied. We were able to demonstrate that a single intravenous injection of 500,000 units of penicillin resulted in the appearance of penicillin in the spinal fluid within two hours. The amounts of penicillin in the cerebrospinal fluid were doubled when carinamide was administered intravenously with the same dose of penicillin, and when penicillin and carinamide were given together no case failed to show penicillin in the spinal fluid. This was a controlled series of cases, the same patients being studied with penicillin alone and then later when penicillin was given in conjunction with carinamide. These findings were applied to the treatment of purulent meningitis. Within two hours following a single intravenous dose of 500,000 units of penicillin as much as 2 and 8 whole units of penicillin per cubic centimeter of cerebrospinal fluid have been observed. Since the samples were taken from the lumbar region it is implied from what is known of the formation of cerebrospinal fluid that within two hours penicillin had diffused throughout the subarachnoid space. Certainly, whole units of penicillin are bactericidal for pneumococci and, although we may be inclined to administer the antibiotic intrathecally, it would appear unnecessary in view of these findings.

Dr. W. James Gardner, Cleveland: It is not unfortunate, but it is a fact that the appearance of penicillin on the medical horizon somewhat discouraged the further investigation of the effectiveness of the sulfonamide compounds. A fact which Dr. Dowling did not mention is that it has been found by laboratory work that the administration of urea enhances tremendously the effectiveness of the sulfonamide compounds. That is in vitro as well as in vivo, locally as well as systemically. The action of urea, and the method by which urea enhances the effectiveness of the sulfonamide compounds, is that it inhibits the normal inhibitors of sulfonamide compounds, and increases the solubility of the sulfonamides. It increases their ability to penetrate tissues and it may lower the blood brain barrier to the passage of sulfonamide compounds.

Dr. Percival Bailey, Chicago: After these infections have been cured, the rest of humanity that are left are gravitating to the hands of the neurologist. In my experience, I have seen several cases in which I have been convinced that intrathecal therapy increased these disabilities. I was therefore greatly pleased when Dr. Dowling stated that he no longer needed to put penicillin into the spinal fluid. I look forward to the day when he will cease putting streptomycin into the spinal column also. I have never believed that treatment was helped by putting the drug into the spinal canal.

Dr. Harry F. Dowling, Washington, D. C.: With regard to Dr. Spink's findings on the penetration into the cerebrospinal fluid, we also found that in normal patients the penetration is not as good as in those with meningitis, but with the dose that we use we always obtain in a significant concentration after eight hours. We used this dose in a large enough series of patients to prove statistically that we had a method of treatment which was worth while. It is true, as Dr. Spink says, that when no more than 20,000 units is given at one time, we seldom get any neurologic complications, but there are cases reported in the literature in which these have occurred on a dose of 20,000 units. Not only that, I wish I could have had time to show you the rapid drop in temperature which occurred in the recovered patients who received this systemic penicillin as compared with those patients who received the combination. Also, pleocytosis disappeared much more rapidly in the recovered patients who received the systemic penicillin alone, as compared with those who received the combination. I think Dr. Spink has a point that we do not know yet what to recommend in staphylococcic meningitis. It is probably best to use the orthodox treatment of combined injections until we can prove that intrathecal injections are not needed. I was very interested in Dr. Gardner's remarks on urea. I feel that that is something worth investigating. We have not used it clinically. Dr. Boger's discussion pointed up the one fact that if we use some other method, particularly in his case carinamide, we may be able to get the same results that we got with our dose. We did not employ carinamide, although that seemed a feasible thing to do, because, as I say, we wanted to get enough patients who had been treated in exactly the same way to prove whether this method was worth while. I think in the future we will try some method similar to that mentioned by Dr. Boger. With regard to Dr. Bailey's statement on the use of streptomycin intrathecally, I know that there is a point. I wish I felt free to do without it, but the experience of the medical research council of England seems to show that it is necessary to use streptomycin intrathecally. Here we cannot raise the systemic dose, ad libitum, as we can with penicillin, in order to get penetration.

DANGER OF DICUMAROL® TREATMENT IN PREGNANCY

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The increasing use of dicumarol® in the prevention and treatment of thromboembolic phenomena brings up the clinically significant question whether this drug, when given to a pregnant woman, has any deleterious effects on the growth and development of the fetus. Schofield[1] in 1924 noticed that newborn calves appeared to be much more sensitive to toxic sweet clover hay than mature animals did. Roderick and Schalk[2] recorded similar experiences. Quick[3] gave dicumarol® to 2 dogs during their last week of pregnancy; he observed that the prothrombin levels of the newborn pups were definitely reduced (less than 1 per cent of normal), in spite of the fact that the prothrombin levels of the mothers were maintained well within a "safe" range. The pups also showed a decided tendency toward bleeding, and none of them survived, unless vitamin K was given. Quick concluded that the administration of dicumarol® is contraindicated during pregnancy. Our investigation was undertaken to observe the influence of dicumarol® not only on the newborn but also on the intrauterine growth and development of the fetus. The rabbit was selected for these experiments because of its short gestation period.

MATERIAL AND METHODS

Female rabbits weighing 3 to 6 Kg. were used in the experiments. The animals were kept in separate cages and fed only purina® rabbit chow and water. Determinations of the prothrombin time were performed by Quick's one stage method. It was realized that this test does not measure the true level of prothrombin alone but also indicates the interdependent actions of several components involved in the clotting process, namely, prothrombin, the fifth factor[4] (Ac-globulin[5] and labile factor[6]), thromboplastin and calcium, when, of course, a sufficient quantity of fibrinogen is present. The one stage method was selected because of its widespread clinical use, thus enhancing the interpretation of the experimental findings. For this reason also, the lower limit of the "safe" range was arbitrarily set at 10 per cent of normal, as it is commonly done in the dicumarol® therapy of human beings.[7]

Batches of thromboplastin were prepared from several rabbit brains according to Quick's acetone dehydration method.[8] A saline suspension was then made immediately, kept at 50 C. for fifteen minutes with constant stirring, centrifuged slowly for five minutes and stored in the dry ice box in stoppered vials

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From the Department of Hematologic Research, Medical Research Institute, and the Department of Surgery, Michael Reese Hospital.

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in aliquots of 1.5 cc.[9] Such a batch of thromboplastin retained its full potency for months and allowed direct comparison of the prothrombin times from day to day. Frequent prothrombin determinations on normal rabbits consistently gave values between six and seven seconds. Proper dilution curves were also performed at frequent intervals.

Blood for the prothrombin time determinations was drawn by means of heart puncture in the control animals and by ear vein puncture in dicumarolized animals. The ear vein puncture was used in preference to the heart puncture because of the danger of fatal hematopericardium in dicumarolized animals.[10] The blood of the newborn rabbits was drawn by heart puncture. The babies usually did not survive the heart puncture for more than one day. Therefore, the prothrombin time was not determined in all the litter mates, but in a representative group only, in order to permit the study of survival rate of the newborn rabbits.

Dicumarolization was accomplished by placing the appropriate quantity of pure dicumarol® powder [11] into no. 5 gelatin capsules. These capsules were put into one end of a short piece of rubber tubing. The rabbit's mouth was held open by a gag, the tube inserted deeply into the pharynx and the capsules flushed out of the tube with 2 to 3 cc. of water by means of a syringe.[12] This procedure prevented the regurgitation of the capsule. Although the oral application of dicumarol® introduces the conceivable factor of variable absorption into the experimental conditions, we found that this type of administration gave satisfactory results. The oral route also seemed preferable because it was thought that daily injections into the ear veins might increase the danger of undesirable damage to these vessels, which were already so often used for obtaining blood for the prothrombin determinations. Intraperitoneal administration seemed inadvisable because of the possible interference with the pregnant state of the animals.

Prothrombin Times of Pregnant Rabbits Receiving No Dicumarol®

Animal	Prothrombin Times							
	1		2		3		4	
	Sec.	%	Sec.	%	Sec.	%	Sec.	%
Mother	6.4	100	7.0	100	7.0	100	6.4	100
Baby 1	7.8	75	7.4	87	8.0	60	6.4	100
Baby 2	7.0	75	7.4	85	8.6	45	6.4	100
Baby 3	...	...	...	...	8.6	45	6.6	95

RESULTS

I. *Controls.*—Four pregnant rabbits were used as controls and did not receive any dicumarol.® The results are compiled in the table.

The somewhat lower prothrombin levels demonstrated in the babies of mothers no. 1 and no. 2 and the even more depressed levels of the babies of mother no. 3 might be explained by the drop of prothrombin value in newborn rabbits during the first twenty-four hours as determined with the one stage method.[8] This phenomenon has been described by numerous investigators.[18] These babies were born during the night, and the determinations of the prothrombin time were not performed until the next morning, corresponding to an interval of eight to twelve hours. The babies of rabbit no. 4 were examined within one hour after birth and consequently showed practically normal prothrombin values.

II. *Effect of "Unsafe" Doses of Dicumarol.®*—Four rabbits received doses of dicumarol® sufficient to cause depression of the prothrombin level to less than 10 per cent of normal. These low levels were never maintained for more than a few days. Whenever the prothrombin level reached such low values, the drug was withheld. However, no vitamin K was given at any time.

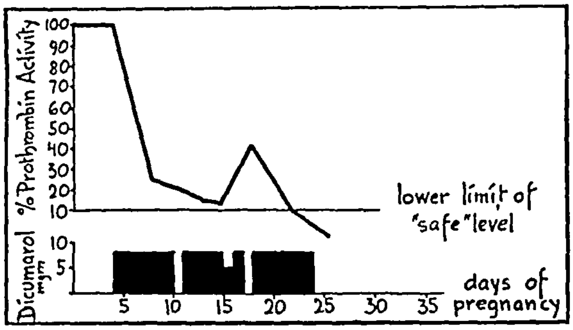

Fig. 1.—Graph showing effect of "unsafe" doses of dicumarol® on prothrombin levels of rabbit no. 5. Seven macerated fetuses were found in utero, weighing 17 to 21.5 Gm., which had been dead for at least several days prior to the death of the mother.

Rabbit no. 5 was started on 8 mg. of dicumarol® on the fifth day of pregnancy. The prothrombin level fell to 25 per cent by the eighth day and thereafter was maintained between 10 and 25 per cent, with the exception of the eighteenth day, when it rose to 40 per cent. On a continued daily dose of 8 mg. of dicumarol,® the prothrombin level fell to less than 1 per cent on the twenty-fifth day; the rabbit died on the twenty-sixth day, two days after discontinuation of the dicumarol® administration. Blood was observed in the nostrils and vaginal bleeding had started. Postmortem examination disclosed multiple hemorrhages into the lungs. The uterus contained about 100 cc. of nonclotted blood. In the uterus were found seven baby rabbits, weighing between 17.0 and 21.5 Gm., as compared with normal weights of 30 to 60 Gm. All fetuses were macerated and showed evidence of having been dead several days prior to the death of the mother.

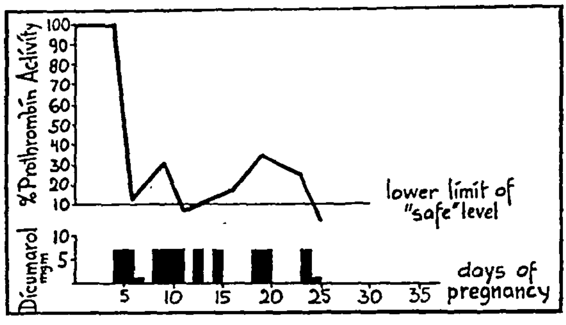

Fig. 2.—Graph showing effect of "unsafe" doses of dicumarol® on prothrombin levels of rabbit no. 6. One baby (weight, 25 Gm.) was born dead. Eight macerated fetuses, weighing 10 to 40 Gm., were found in utero.

Rabbit no. 6 was started on 7 mg. of dicumarol® on the fifth day of pregnancy. By the sixth day the prothrombin level had fallen to 12 per cent of normal. Only 1 mg. of dicumarol® was given on that day and the drug was withheld the next day. By the ninth day a prothrombin level of 30 per cent was found. On the eleventh day the prothrombin level again had fallen to only 6 per cent of normal. Thereafter, prothrombin was kept above 10 per cent, at one time reaching 35 per cent. However, on the twenty-fifth day a dangerously low level was present (2 per cent). Dicumarol® was again discontinued, and the rabbit died on the twenty-ninth day, after delivering one dead fetus weighing 25 Gm. There was considerable blood in the cage. On postmortem examination the uterus contained about 40 cc. of liquid and some clotted blood. Eight infant rabbits were found in utero. Two of these were very small, weighing only 10 and 12 Gm., respectively, and consisting mainly of placental tissue with some unrecognizable tissue attached to it. The other 6 babies weighed between 30 and 40 Gm. and were relatively well developed. From the discrepancy in weight and development of the infant rabbits, it may be surmised that the two immature ones died during the first episode of dicumarol® poisoning on about the eleventh day of pregnancy, while the remainder survived until about the twenty-fourth day of pregnancy.

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[10] Quick, A. J.: Experimentally Induced Changes in the Prothrombin Level of the Blood, J. Biol. Chem. **161:** 33, 1945.

[11] Dicumarol® powder was supplied by Abbott Laboratories, North Chicago, Ill.

[12] Singer, K.: Experimentelle Beiträge zum Problem der Pathogenese der perniziösen Anämie: Ueber künstliche Infektion von Hunden mit Bothriocephalus latus, sowie über die Methoden zur tierexperimentellen Erzeugung einer Achylie, Ztschr. f. d. ges. exper. Med. **79:** 398, 1931.

[13] Quick.[4] Brinkhous, K. M.: Plasma Prothrombin: Vitamin K, Medicine **19:** 329, 1940. Quick, A. J., and Grossman, A. M.: The Nature of the Hemorrhagic Disease of the Newborn, Am. J. M. Sc. **199:** 1, 1940. Waddell, W. W., Jr., and Lawson, G. M.: Hemorrhagic Diathesis of the Newborn: Further Observations Concerning Prevention and Treatment, J. A. M. A. **115:** 1416 (Oct. 26) 1940.

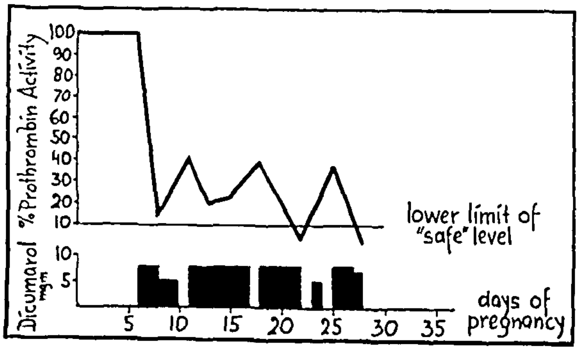

Fig. 3.—Graph showing effect of "unsafe" doses of dicumarol® on prothrombin levels of rabbit no. 7. Four babies (weight, 30 to 44.5 Gm.) were born dead; 2 fetuses were found in utero (weight, 1 and 36.5 Gm., respectively). All showed severe maceration.

Rabbit no. 7 was started on 8 mg. of dicumarol® on the sixth day of pregnancy. It was maintained on prothrombin levels between 10 and 40 per cent of normal until the twenty-second day of pregnancy, when an "unsafe" level of 3 per cent was reached. Dicumarol® was discontinued for one day; the next day only 5 mg. was given, and the day after, dicumarol® again was omitted. On resumption of administration of the drug, the prothrombin level again dropped to 1 per cent on the twenty-eighth day, and the rabbit died on the thirtieth day, after delivering four dead babies weighing between 30 and 44.5 Gm. The rabbit lost a considerable amount of blood during the delivery. Three of the four baby rabbits were macerated. On postmortem examination two infant rabbits were found in the uterus, one weighing 36.5 Gm. and one 1 Gm. The uterus contained 20 cc. of nonclotted blood and a blood clot measuring 2 by 10 cm. The rabbit also showed some retroperitoneal hemorrhage and bleeding into the wall of the colon.

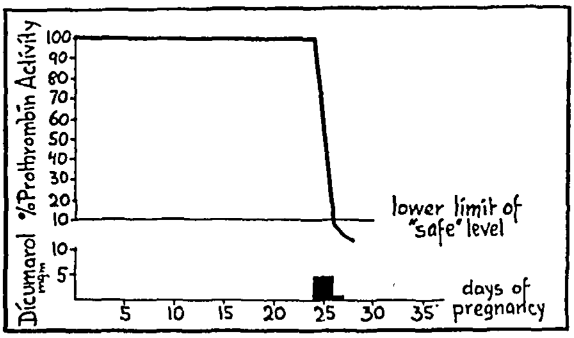

Fig. 4.—Graph showing effect of "unsafe" doses of dicumarol® on prothrombin levels of rabbit no. 8. Two babies were born dead and 7 alive (weight, 40 to 60 Gm.).

Rabbit no. 8 was not started on dicumarol® until the twenty-fourth day of pregnancy. A total dose of only 10.5 mg. of dicumarol® was given. In spite of this small dose, the prothrombin level fell to 2 per cent of normal on the twenty-eighth day and the rabbit died on the thirty-first day, after delivering two dead and seven live babies. The prothrombin level of two of these infant rabbits was 37 per cent of normal immediately after birth. This was four days after dicumarol® had been discontinued in the mother.

These experiments demonstrate that none of the mother rabbits showing a fall of the prothrombin level below 10 per cent of normal at one time or another during pregnancy survived. None of the fetuses survived up to the time of delivery except those of rabbit no. 8, which received dicumarol® only during the last week of the gestation period. The fetuses were small, with conspicuous maceration of the skin and decomposition of the tissues. These fetal changes resulted in spite of the fact that the "unsafe" levels of prothrombin (below 10 per cent) were not maintained for more than two to three days. There were no signs of manifest bleeding in the live babies, which after delivery showed normal development.

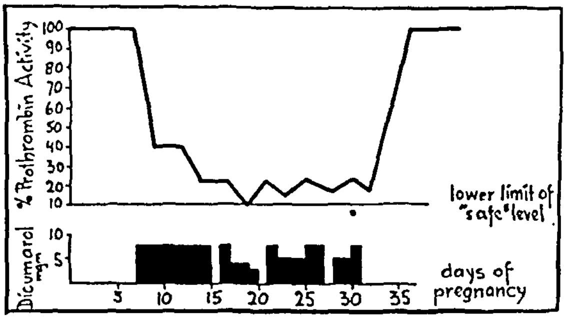

Fig. 5.—Graph showing effect of "safe" doses of dicumarol® on prothrombin level of rabbit no. 9. Two severely macerated babies (weight, 18 and 20 Gm., respectively) were born dead. Four were born alive (weight, 55 to 64 Gm.) with signs of hemorrhagic tendency.

III. *Effect of "Safe" Levels of Dicumarol.®*—Four pregnant rabbits were kept at a "safe" level of dicumarol® administration during their gestation period.

Rabbit no. 9 was started on 8 mg. of dicumarol® per day on the seventh day of gestation. The prothrombin level fell to 40 per cent on the ninth day and to 22 per cent on the fourteenth day and thereafter was maintained between 10 and 25 per cent by means of 5 to 8 mg. of the drug for the remainder of the pregnancy. It delivered six babies on the thirty-first day of pregnancy. Two of these were born dead, weighing only 18 and 20 Gm., respectively. They were badly macerated, indicating early intrauterine death. Two infant rabbits died within thirty minutes after birth; they showed widespread hemorrhages and weighed 55 and 62 Gm., respectively. The fifth baby rabbit weighed 64 Gm., had a prothrombin level of 2 per cent (that of the mother was 18 per cent) and was bleeding from the nostrils. The last baby weighed

57 Gm. with a prothrombin level of 5 per cent of normal. Both these babies died within thirty-six hours.

Rabbit no. 10 was given 8 mg. of dicumarol® per day, starting on the sixth day of pregnancy. The prothrombin level showed considerable fluctuation, reaching 36 per cent on the fifteenth day, 90 per cent on the eighteenth day, 20 per cent on the twenty-eighth day, 50 per cent on the thirtieth day and, finally, 18 per cent on the day of delivery. Thirteen live baby rabbits were born on the thirty-second day of pregnancy. In a representative group of four infant rabbits, including the animals of the lowest and highest weight, two with and two without outward signs of hemorrhage, the prothrombin levels were all demonstrated to be below 1 per cent of normal. Two of the other babies also showed evidence of hemorrhage. Eight babies were dead one day after delivery, including the four who underwent heart puncture. All baby rabbits died within five days after delivery. The mother did not lose an excessive amount of blood during delivery and remained healthy.

Rabbit no. 11 was started on 8 mg. of dicumarol® on the seventeenth day of pregnancy. The prothrombin level reached 23 per cent on the twenty-first day and then remained between this level and 10 per cent up to the day of delivery. The rabbit gave birth to eleven babies on the thirty-first day; one of them was born dead, weighed 33 Gm. and showed some signs of maceration. The prothrombin level in five of the live infant rabbits on the day of delivery was less than 1 per cent. One baby had a prothrombin level of 2 per cent. The day after delivery one baby rabbit had a prothrombin level of 18 per cent and another one of 25 per cent. The two infant rabbits which were not subjected to heart puncture died the day after delivery, and all babies were dead by the fifth day.

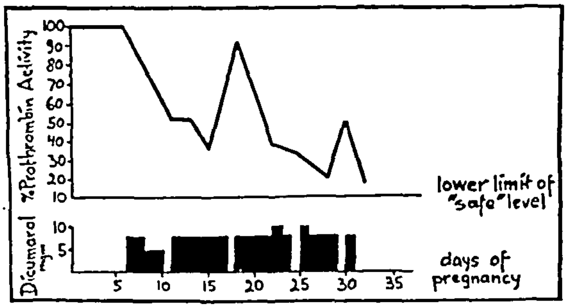

Fig. 6.—Graph showing effect of "safe" doses of dicumarol® on prothrombin levels of rabbit no. 10. Thirteen live babies (weight 24 to 55 Gm.) were born with signs of hemorrhagic tendency.

Rabbit no. 12 began to receive dicumarol® (7 mg. daily) on the fourth day of pregnancy. The prothrombin level fell to 50 per cent on the sixth day and to 40 per cent on the eleventh day. Then the level rose to 80 per cent on the sixteenth day and fell to 29 per cent on the nineteenth day. The animal started vaginal bleeding on the twenty-first day of pregnancy and passed some tissue and blood clots. No further dicumarol® was given; however, the rabbit died on the twenty-sixth day. The uterus contained eleven macerated, bady decomposed fetuses, measuring 1 to 3 cm. in length, and some bloody fluid. The uterine wall showed hemorrhagic areas. On microscopic examinations, placental tissue could be recognized with certainty; however, the fetuses themselves were too badly decomposed to allow recognition of any of the organs. No other abnormalities were observed in the mother.

These experiments show quite clearly the damaging effect of even "safe" doses of dicumarol® on the embryos. While 3 of the 4 mother rabbits survived after delivery and did not have any excessive intrapartum and postpartum bleeding, the babies sustained an extreme depression of their prothrombin levels at birth. The newborn rabbits exhibited a pronounced hemorrhagic tendency, and their longest survival time was five days. A few fetuses died before delivery.

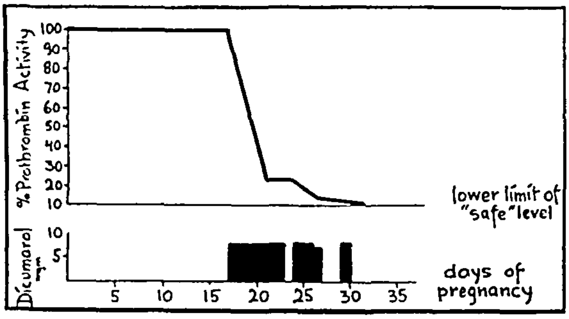

Fig. 7.—Graph showing effect of "safe" doses of dicumarol® on prothrombin levels of rabbit no. 11. One macerated baby was born dead (weight, 33 Gm.). Ten were born alive (weight, 34 to 51.5 Gm.) with signs of hemorrhagic tendency.

COMMENT

The occurrence of thrombosis in pregnant women brought up the question of the advisability of dicumarol® therapy in this condition. A search through the literature did not reveal any experimental studies of this clinically significant problem, with the exception of the animal experiments by Quick.[3] Neuhof [7a] stated that dicumarol® is contraindicated during pregnancy and based this statement on the belief that the drug will cause excessive hemorrhage during and after delivery. Von Sydow [14] observed 1 patient who received the drug during the last month of pregnancy. The newborn infant showed severe subcutaneous hemorrhages, and treatment with vitamin K did not increase the prothrombin level until six days after birth.

Our experiments seem to demonstrate that dicumarol® passes the placental barrier. Three of the 4 animals kept on "safe" prothrombin levels during the administration of the drug delivered in a normal manner and showed no evidence of excessive intrapartum and postpartum bleeding. The fourth aborted on the twenty-first day and died five days later. However,

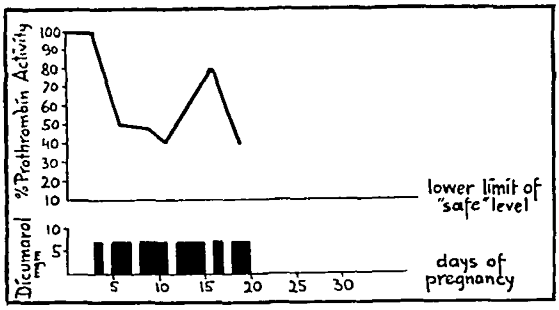

Fig. 8.—Graph showing effect of "safe" doses of dicumarol® on prothrombin levels of rabbit no. 12. Eleven macerated fetuses were found in utero.

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[14] von Sydow, G.: Hypoprothrombinemia and Cerebral Injury in Infant After Dicumarol Treatment of Mother, Nord. med. 34: 1171, 1947; abstracted in Videbaek, A.: A Review of the Scandinavian Literature on Hematology from the Years 1946 and 1947, Acta Haemat. 1: 126, 1948.

We have had 1 fatality (case 22) attributable to dicumarol® among 273 patients in whom we have supervised anticoagulant therapy.[8a] This patient, a 43 year old white woman, was referred to the University Hospital for evaluation of her hypertension. There was a history of a cerebrovascular accident about ten months before admission. During the course of her studies, anticoagulant therapy was undertaken because of an acute occlusion of a retinal artery; heparin, received initially, was supplemented by dicumarol.® Dicumarol® was discontinued on the eleventh day of treatment after a total of 2.0 Gm. had been administered. The prothrombin level (Quick procedure) had been satisfactorily controlled between 30 to 20 per cent of normal concentration until the thirteenth day, when it suddenly dropped to less than 5 per cent of normal concentration. At this time the patient complained of dizziness and frontal headache; shortly thereafter she lapsed into coma with signs of a left hemiplegia and meningeal irritation. Seventy-two milligrams of vitamin K (hykinone®) were given intravenously; death occurred about four hours after the onset of symptoms. Permission for an autopsy was not obtained. Despite the lack of objective bleeding, a cerebrovascular accident is assumed to have been the cause of death. We have felt that the association of this accident with the excessive hypoprothrombinemia may well have been more than coincidental.

The absolute necessity of reliable laboratory facilities to guide the administration of dicumarol® is clearly illustrated in case 21. The patient, who suffered from thrombophlebitis and pulmonary emboli, died in a state of hemorrhagic diatheses during dicumarol® therapy. An average dose of 240 mg. of dicumarol® administered daily for fourteen days had failed to increase the prothrombin to the desired therapeutic level, as measured by the technic employing Russell viper venom as thromboplastin. Subsequent investigation disclosed the method insensitive to decided changes in prothrombin levels as evident when tested by the Quick procedure.

Particularly unfortunate have been those fatalities occurring when dicumarol® has been administered to patients without the benefit of prothrombin determinations. Fahraeus [9] (as noted by Thorsen [4]) reported a death from gastric bleeding (case 4) after 250 mg. of dicumarol® had been given daily for ten days without estimation of the prothrombin time. Smith,[10] commenting on the inadvisability of use of the drug when laboratory facilities are unavailable, mentioned a "disastrous result in one case when a dose of 250 mg. of dicumarol raised the prothrombin time to 9 minutes." Shlevin and Lederer (case 8) reported [11] the first case with postmortem observations of uncontrollable hemorrhage after dicumarol® therapy. This patient, prior to coming into their hands, had received 100 mg. of dicumarol® daily for twenty-one days for a retinal vein thrombosis; therapy was uncontrolled by prothrombin determinations. We have recently seen a similar case (case 23) in which large doses of dicumarol® had been administered daily for about thirty-seven days with no laboratory control.

REPORT OF A CASE

A 36 year old white woman was first admitted to the University Hospital as an emergency patient at 2 p. m. on Dec. 29, 1947. According to the accompanying letter from the referring physician, the patient had complained of violent headaches and pain in the shoulders, neck and back. These symptoms were associated with extreme weakness, nausea, lower abdominal cramps, hemoptysis and vaginal bleeding. The past history revealed that she had had pulmonary tuberculosis for which she had received sanatorium care for eight months in 1928; three months prior to the present illness she had had a normal chest roentgenogram and a negative reaction to a tuberculin test. An appendectomy had been performed in 1945. The family history was irrelevant.

According to her husband, from whom the details of the present illness were obtained, dicumarol® had been administered because of the recent onset of pain and swelling of both legs. Treatment with the drug was started on Nov. 20, 1947 and continued until December 27 in a dosage thought to be 300 mg. daily. In this period a total of about 11.1 Gm. is estimated to have been ingested; the prescription had been refilled on three different occasions, despite the fact that the condition of her legs had improved. She had also received orally an unknown amount of penicillin; no information was available concerning the use of sulfonamide drugs. In this period she was up and about the home; no laboratory studies were carried out. Nothing untoward took place until about December 22, when there was the onset of blood-streaked sputum. Two days later, because of nausea and vomiting, dicumarol® had been withheld and the patient was put to bed. On December 27, she complained of a severe and progressive headache. The day before admission the patient became irrational, bleeding began from the mouth and vagina, and there was gross hematuria. There had been no epistaxis.

On admission to the Medical Service, the patient was obviously acutely and critically ill, being semicomatose and disoriented. Though well developed and nourished, she was in a state of peripheral vascular collapse, with the blood pressure at 80 systolic and 60 diastolic, the pulse rate 130, the respirations 15 per minute and the temperature 98.6 F. There was a small amount of blood-streaked sputum and moderate bright red vaginal bleeding. Submucosal ecchymoses were observed on the tongue, gums and cheeks and in the pharynx. There were ecchymoses on the extremities, which measured up to 3 cm. in diameter; petechiae were not observed; the result of the tourniquet test was negative. Bleeding into the fundi was not seen. A systolic murmur was heard over the entire precordium. The neurologic examination revealed fixation and constriction of the left pupil, ptosis of the right eyelid and a left-sided facial paralysis with deviation of the tongue to the left. There was nuchal rigidity. Kernig's and Brudzinski's signs were positive. There was weakness of the left arm and leg; the left achilles reflex was hyperactive; ankle clonus and the Babinski sign were present bilaterally. The patient was unresponsive to light, touch or vibration. Deep pain produced a withdrawal reaction.

It was possible to do only the more urgent laboratory studies. The urine contained gross blood. Blood hemoglobin measured 9 Gm. (Sahli). The bleeding time (Ivy method) was prolonged to 7 minutes; the clotting time (Lee and White method) was prolonged to 48 minutes; clot retraction was decidedly deficient at the end of 2 hours. The prothrombin time (Quick procedure) was prolonged to 500 seconds in one determination and 800 seconds in another, with the normal control time of 16 seconds. The amount of prothrombin was so depleted that expression in terms of percentage of concentration, from the standard dilution curve, was impossible. The result of the postmortem Kahn serologic test was positive.

Heroic efforts were made to control the inevitable course of the hemorrhagic diatheses. With 1,000 cc. of blood and 1,500 cc. of 5 per cent dextrose, the peripheral vascular collapse was temporarily controlled, the blood pressure eventually rising to 130 systolic and 78 diastolic. Seventy-two milligrams of vitamin K (hykinone®) was administered intravenously every three hours, a total of 222 mg. being received in fourteen hours. Despite some initial improvement, the patient never regained consciousness; restraints were required. Eight hours after her admission, the respirations became Cheyne-Stokes in character. Death occurred fifteen hours after her admission to the hospital, and three days after the dicumarol® therapy had been discontinued. The prothrombin time of blood obtained at autopsy (four hours after death) was 85 seconds, as compared with the normal control time of 16 seconds. The prothrombin concentration was estimated to have been less than 5 per cent of normal.

[8a] Since completion of this report a second fatality due to dicumarol has occurred in the University Hospital. This patient, a 79 year old woman, likewise had severe hypertension and had sustained cerebrovascular accidents several months prior to admission. Prophylactic dicumarol, instituted subsequent to a femoral neck fracture, was associated with a sudden drop in prothrombin to a low level coincident with which the patient sustained a fatal cerebral hemorrhage. An autopsy was not permitted. The occurrence of these two fatalities stresses the hazard of administering dicumarol to patients with severe hypertension, particularly if there is a past history of cerebrovascular accidents.

[9] Fahraeus, R.: Svenska lak-tidning **40:** 2859, 1943.

[10] Smith, E., and Kaufmann, J.: Use of Dicumarol and Vitamin K in Urological Cases, J. Urol. **52:** 353 (Oct.) 1944.

[11] Shlevin, E. L., and Lederer, M.: Uncontrollable Hemorrhage After Dicumarol Therapy with Autopsy Findings, Ann. Int. Med. **21:** 332 (Aug.) 1944.

Postmortem Examination.—Gross Pathologic Observations: The pertinent gross pathologic observations were as follows: The head and neck were essentially normal, except for the presence of considerable serosanguineous exudate in the oral pharynx. There were multiple puncture wounds on the arms, antecubital fossae and buttocks, in association with some of which there were diffuse hematomas. There was an old lower abdominal midline scar.

The brain weighed 1,160 Gm. The meningeal vessels were congested. Beneath the right inner meninges was a diffuse hematoma over the entire right hemisphere; the left meninges were congested. The right hemisphere was swollen and edematous; sulci were narrowed; gyri flattened. There was a lemon-sized hemorrhagic softened necrotic lesion in the right parietotemporal region near the external cortical surface and ventricle. The left hemisphere was edematous and congested and contained multiple petechial hemorrhages throughout. The ependymal surface of the right and left lateral ventricles showed congestion. The choroid plexus was hemorrhagic and cystic. Examination of the lumbar part of the spinal cord revealed a diffuse hematoma beneath the pia-arachnoid.

The pleural cavities contained no excess free fluid and were obliterated bilaterally along the posterior gutters by dense fibrous adhesions. The left lung weighed 550 Gm. The cut surface disclosed acute passive congestion. The right lung weighed 600 Gm.; its gross appearance was comparable with the left. There was severe congestion of the mucosa of the trachea, bronchi and esophagus; the bronchi contained a moderate amount of serosanguineous exudate. The thoracic and abdominal aorta revealed slight atherosclerosis of the intima.

There were 40 cc. of serosanguineous fluid in the pericardial sac. The heart weighed 240 Gm. The thickness of the left and right ventricular walls was normal, with normal epicardial and endocardial surfaces. A few petechial hemorrhages were present in the right ventricle and right atrium; no thrombi were found. The dimensions of the mitral, tricuspid, pulmonary and aortic valves were normal. A few yellow nodules were present on the leaflets of the mitral and tricuspid valves and on the free margins of the aortic cusps. A diffuse hematoma was present in the atrial wall at the entrance of the superior vena cava. The coronary arteries revealed slight atherosclerotic changes.

The abdominal cavity contained approximately 100 cc. of fluid blood distributed over loops of large and small intestines; fibrous adhesions were present. The peritoneum, which was pinkish purple, contained multiple petechial hemorrhages throughout. The spleen weighed 100 Gm.; the cut surface showed a purplish red splenic pulp with well marked malpighian corpuscles; there was no infarction. The mucosa of the large and small intestines was congested but not hemorrhagic. The appendix was absent. Serosal hemorrhages were present in the stomach. The pancreas weighed 100 Gm. and was free of hemorrhage. The liver measured 6.5 cm. below the ensiform and 2 cm. below the right costal margin; its weight was 1,540 Gm. The external, and especially the lower, surface showed diffuse ecchymotic hematomas in the capsule. The cut surface disclosed a mottled yellow-pink appearance. About the blood vessels of the hepatic trinities, outside their walls, was a dark purple hematoma. The wall of the gallbladder contained a diffuse hematoma. The left adrenal weighed 12 Gm. A diffuse hematoma was present about the gland and in the periadrenal tissue. There was slight autolysis of the medulla but no hemorrhage. The right adrenal, which weighed 16 Gm., showed similar changes. The left kidney weighed 220 Gm., and the capsule stripped with ease. There were multiple petechial hemorrhages, and the cut surface disclosed acute passive congestion. The pelvic mucosa was severely congested, and a diffuse hematoma outside the mucosa extended 6.5 cm. down the ureter. Hematomas were also present within the ureteral mucosa. The gross appearances of the right kidney, which weighed 190 Gm., and the ureter were similar to those on the left, including the same distance of hemorrhage from the pelvic mucosa. There was congestion of the mucosa of the rectum, urethra and bladder, the latter showing a few petechial hemorrhages. There was cystic cervicitis. Fluid blood was present over the surface of the endometrium; a small myometrial leiomyoma was present. The ovaries were cystic; the uterine ligaments contained a diffuse hematoma.

Microscopic Pathologic Observations: The examination of the spinal cord revealed congestion with slight subarachnoid hemorrhages. The essential lesions found in the brain consisted of small hemorrhages by diapedesis, which were most numerous in the white matter of the cerebral hemispheres but were also present in the cerebral cortex, brain stem and white matter of the cerebellum. Associated with this there was distension of the subarachnoid spaces by fresh blood and recent bleeding at the site of the softening in the right parietotemporal region. There was also severe dilatation of the arterioles and capillaries and some perivascular rarefaction of tissue. In some perivascular regions there was old blood pigment engulfed by histocytes. The secondary effects of the hemorrhagic disturbance consisted of severe edema of the parenchyma, manifested by distension of the interstitial spaces, swelling of the oligodendroglia and shrinkage of cortical neurons. There was also a mild proliferation of microglia and astrocytes in the white matter.

There was hemorrhage in the epicardial fat. The aorta showed slight atherosclerotic changes with calcification of the media. Acute congestion and edema of the lungs were present, with severe hemorrhages by diapedesis. Atelectasis, emphysema and fibrous pleuritis were observed. The trachea showed hemorrhages into the adventitia; there were hemorrhages into the serosa of the esophagus and stomach.

The thymus contained persistent lymphoid tissue, and fatty atrophy was present. The spleen revealed acute passive congestion. There were hemorrhages into the mesentery of the small intestines, and wandering cells were increased. The colon was normal except for increased mucin. There was congestion of the pancreas with slight hemorrhage by diapedesis. Extensive hemorrhage was present at the hilus of the liver and over the capsule with central brown atrophy and slight lipidosis of the parenchyma (fat stain). The gallbladder showed extensive hemorrhage beneath the serosa, with a subacute inflammatory infiltration, including eosinophils, and thrombosed veins. Periadrenal hemorrhage was present with leukocytic infiltration and loss of lipids from the inner zone of the cortex (fat stain). The kidneys were congested, and hemorrhage was present in the distal convoluted tubules. There was vasculitis in the pelvic adipose tissue, with abundant eosinophils. Hemorrhage had occurred beneath the pelvic epithelium. Slight interstitial peripelvic nephritis was present; fat stains were negative. The ureters revealed hemorrhage throughout the walls with eosinophils in an inflammatory exudate and severe mucosal congestion. Voluntary muscle showed hemorrhages in adjacent adipose tissue. Bone marrow of the ribs, sternum and vertebral bodies, following decalcification, was hyperplastic, about 90 per cent cellular, with periosteal hemorrhages. The breasts and bladder were essentially normal.

Pathologic Diagnosis[12]: Hypinosis was observed, with cerebral, subarachnoid, cardiac, renal, hepatic, pulmonary, periosteal, retroperitoneal and cutaneous hemorrhages. Other observations were: acute passive congestion of all organs; cerebral and pulmonary edema; angiitis in the wall of the gallbladder, renal pelves and ureters, with eosinophilia; hypersensitivity reaction; slight atherosclerosis of the aorta and its branches; slight lipidosis of the liver; edentulism; fibrous pleuritis; an old appendectomy, and persistent thymus. There was positive reaction to a postmortem serologic test (4 plus, Kahn), indicating possible latent syphilis. A culture of blood from the heart yielded no growth.

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[12] The gross and microscopic observations were made by the Department of Pathology and Neuropathology, University Hospital, Universit of Michigan, Ann Arbor.

COMMENT

Dicumarol® poisoning is characterized by hemorrhage. In cattle fed spoiled sweet clover hay, as pointed out first by Schofield[13] and later by Roderick,[14] bleeding occurred at sites of stress and was more commonly present in fascia of muscles and subcutaneous tissues, with the local blood vessels showing no pathologic changes. Schofield described gross lobular lesions in the liver to which he attributed the hemorrhagic tendency. Roderick attributed these observations to postmortem changes and found no serious impairment in hepatic function.

McCarter, Bingham, Meyer and Pohle[15] reported the pathologic observations after the administration of dicumarol.® In dogs dying of acute poisoning after massive doses of dicumarol® the outstanding morphologic evidences of toxicity were: (1) gross or microscopic hemorrhage, (2) toxic lesions of small vessels, (3) acute renal glomerular swelling and (4) toxic lymphoid tissue reactions. They particularly emphasized the presence of serious damage to the small blood vessels. No consistent lesions of the liver attributable to dicumarol® were discovered. In a series of dogs which had received dicumarol® at levels of therapeutic dosage, the only toxic tissue effect observed was in the hyperplastic reactive lymphoid tissue. In a series of 5 autopsies on human beings to whom dicumarol® in therapeutic doses had been administered, no typical lesions were observed which could be unequivocally charged to dicumarol.®

Ferraro and Roizin[16] reported histologic changes in various tissues and viscera of chicks due to dietary vitamin K deficiency with hypoprothrombinemia. A diffuse hemorrhagic diathesis was represented by small and large hemorrhagic involvement of subcutaneous tissues, muscles, joints, bone, periosteum, heart, thymus, lungs, intestines, liver, kidneys, spleen, gonads, meninges, spinal cord and brain. Notable changes in the walls of veins and arteries were emphasized, such as irregular dilatation, hypertrophy, hyperplasia and mild degeneration to complete rupture of the vessels.

Shlevin and Lederer,[11] reporting postmortem observations in a fatal case of uncontrollable hemorrhage in a human being following dicumarol® therapy, emphasized decided engorgement of all blood vessels, excepting the large trunks, which was most pronounced in the capillaries, arterioles and venules. Where the hemorrhages occurred in various tissues and organs, the vessel walls were consistently found to be intact with broad lumens. They suggested that these extravasations were due to diapedesis between cells rather than to rupture or solution of continuity of the cell walls. They reported that the liver showed many areas with distended sinuses filled with unclotted blood. This also was a prominent feature in dogs poisoned with excessively large doses of dicumarol.®[15]

Our patient demonstrated many of the aforementioned changes, in addition to gross hemorrhage into the brain, kidney and liver. The associated gross destruction of brain tissue was probably the immediate cause of death.

CONCLUSION

The most important of all contraindications to the use of dicumarol® is lack of reliable laboratory facilities for prothrombin determinations. Employment of this beneficial drug without laboratory control is hazardous and may result in fatal widespread hemorrhage.

Caution should be observed in the administration of dicumarol® to patients with severe hypertension, particularly if there is a past history of cerebrovascular accidents.

EVALUATION OF AEROSOL-NEGATIVE PRESSURE THERAPY

Given Once Daily in Chronic Purulent Sinusitis

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The purpose of this investigation is a critical evaluation of aerosol alternating negative pressure therapy given once daily in cases of chronic purulent sinusitis.

The inhalation route for administration of various medicaments, such as bronchodilator and bronchovasoconstrictor drugs, and in more recent years chemotherapeutic and antibiotic groups of drugs, is now well established in the treatment of certain types of bronchopulmonary disease.[1] Inhalational therapy of diseases of the upper part of the respiratory tract has also been extended to include antibiotic aerosols. Some favorable clinical results were reported by Vermilye[1j] in cases of acute sinusitis and acute pharyngitis and in acute exacerbations of chronic sinusitis. However, it was first demonstrated by Barach and his co-workers[2] that alternating application of negative pressure with inhalation of penicillin aerosol was necessary to insure

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the introduction of penicillin into the maxillary sinuses and thereby prove efficacious in therapy of chronic sinusitis.

In cases of chronic purulent sinusitis such treatment performs four functions: shrinkage of congested mucous membrane, drainage of exudate from the paranasal sinuses during the phase of suction, ventilation of the sinuses with oxygen or air and introduction of antibiotic aerosol to the diseased site.

Barach and his co-workers previously reported the clinical usefulness of nasal penicillin aerosol combined with alternating negative pressure in therapy of acute and chronic sinusitis.[3] The original apparatus has been modified into a simplified unit.[4] Experimental evidence has been presented suggesting that ventilation, drainage and deposition of penicillin aerosol occur in the paranasal sinuses when this apparatus is used. An oxygen flow of 5 to 8 liters per minute produces, by means of a glass venturi tube, a negative pressure of approximately 60 to 70 mm. of mercury in the maxillary antrums and slightly higher pressures in the nasal passages. Higher oxygen flows result in progressively higher negative pressures within the nose but very slight increase in negative pressure within the antrums, necessitating the conclusion that above a certain negative pressure the increased suction is not transmitted to the antrums because of closure of the ostiums and therefore defeats the purpose of the suction phase of treatment. In subjects with oroantral fistulas, demonstration of penicillin in the antrum was possible after inhalation of the drug in aerosol form when the sinus negative pressure apparatus was used. It was shown that some of the penicillin aerosol condensed inside the nasal passageway and was sucked into the antrum in liquid form. Finally, it was demonstrated that penicillin introduced into the antrum in aerosol form is actually deposited therein and can be recovered in later irrigation for at least two hours after completion of the aerosol treatment.[3]

McAuliffe and Mueller[5] have described a modification of this apparatus, which can be used in otolaryngologic practice with any standard vacuum and pressure pump to introduce penicillin aerosol into the paranasal sinuses by using calibrated suction and pressure. These authors reported that the method gave good results in infections of the upper part of the respiratory tract, including infections of the paranasal sinuses.

In evaluating the effect of any therapy of sinusitis it must be realized that acute purulent sinusitis is usually a self-limited disease and sooner or later resolves completely in the majority of instances, no matter which of the usual forms of treatment are employed. Some cases of chronic disease are also subject to partial remissions and exacerbations of symptoms. Even in chronic purulent sinusitis no 2 cases are alike. Evaluation of this group as a whole is complicated by the differences in the individual cases because of factors such as the severity of symptoms, duration of the disease and appearance of the physical signs. One patient may complain of only moderate postnasal discharge and nasal congestion over a period of a year or two, present minimal signs of sinusitis and return a few mucopurulent clumps on antral irrigation; while another patient may complain of profuse anterior and posterior nasal discharge, nasal blockage, headache, cough and expectoration over a period of many years, give a history of repeated sinus irrigations and surgical procedures and present 4 plus foul broken-down pus on antral irrigations. Allergic factors also contribute to the variability of the disease—some cases are primarily allergic in nature with a secondary bacterial infection, while other cases are primarily bacterial in nature with a superimposed bacterial allergy. There are other cases in which it is impossible to determine whether the allergy or the infection is the primary cause of the disease. Recently, emphasis has been placed on the importance of psychosomatic influences on the behavior of diseases involving the nasal mucous membranes.[6]

Since the principles of shrinkage and suction in themselves are well established otolaryngologic methods of treatment, we have also attempted in the present study to analyze more accurately the role of the antibiotic versus the role of shrinkage and drainage. The major portion of this report deals with the results of therapy in two comparable series of cases of sinusitis treated with this method in identical fashion except for the omission of penicillin in the group that served as a control. In addition, the experience with streptomycin aerosol in gram-negative sinus infections is presented. Clinical impressions on the practical applications of the method in general and rhinologic practice are discussed, and indications for its use are postulated.

METHODS

Selections were made from patients of the Nose and Throat Department of Vanderbilt Clinic. In selecting cases of chronic purulent sinusitis for inclusion in the series all the following criteria had to be satisfied: (1) a history of continuous symptoms of sinusitis for at least six months prior to treatment, (2) evidence of infection of the nasal mucosa with the presence of pus in the nose either before or after shrinkage, (3) cloudiness of one or more sinuses on transillumination, (4) roentgen evidence of sinusitis, (5) purulent returns on antral aspiration and (6) the appearance of pathogens on culture. A history of the disease was obtained in all patients, with special emphasis on allergic factors, past or associated diseases of the respiratory tract and previous otolaryngologic therapy. A careful examination of the nose, nasopharynx and oropharynx with transillumination of the sinuses was done in each case in order to study the condition of the nasal mucous membrane, to detect signs of allergy, to document the existence of purulent infection and to exclude factors that might interfere with drainage from the paranasal sinuses (polyps, deviated septum, hypertrophied turbinates, etc.). If the sinus ostiums were mechanically blocked, surgical correction was performed prior to acceptance of the patient for therapy.

Routine sinus roentgen examinations were made in all cases. Following this, cocainization of the inferior meatus, antral puncture with a trocar and aspiration of the antral contents were done. The latter was made with a sterile syringe and served both to obtain material for bacteriologic study directly from the antrums and further to establish objectively the presence of purulent infection. This was followed in most cases by a diagnostic antral irrigation, in order to note the amount and nature of the antral contents. In a few patients, i. e., children and hypersensitive persons, nasal cultures of the purulent overflow from the sinuses were taken after prior shrinkage and cleansing of the nasal passages.

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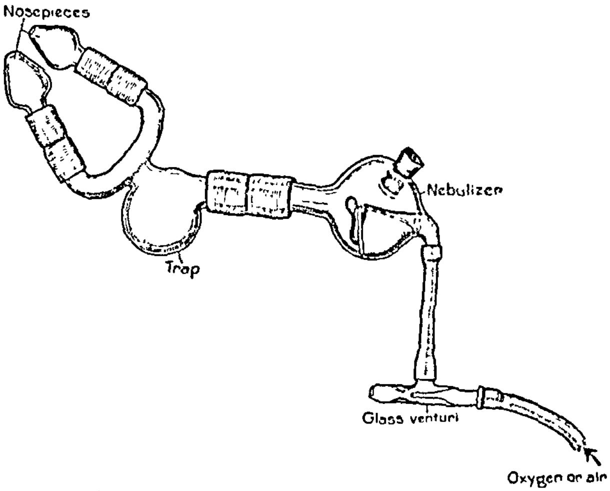
[5] McAuliffe, G. W., and Mueller, G. C.: Aerosol Penicillin Administered in Paranasal Sinusitis with Balanced Suction and Pressure, Arch. Otolaryng. 46: 67-71 (July) 1947.

[6] Fowler, E. P., Jr.: Personal communication to the authors. Holmes, T. H.; Goodell, H.; Wolf, S., and Wolff, H. G.: Changes in the Nasal Function Associated with Variations in Emotional State and Life Situation, Tr. Am. Acad. Ophth. 51: 449-460 (May-June) 1947.

The apparatus used for treatments was the simplified one developed by Barach and his co-workers,[4] consisting of a glass nebulizer, trap and olive-tipped nose pieces which are connected to a source of oxygen or compressed air by means of rubber tubing into which a glass venturi tube is inserted (figure).[7] In using the apparatus, the patient holds the nose pieces tightly in the nostrils. By holding the thumb over the open end of the venturi, oxygen or air is forced into the nebulizer, producing the aerosol which flows into and fills the nasal cavities. The patient gently breathes through his mouth three times, after which he removes his thumb from the open end of the venturi, closes his mouth and swallows. The oxygen or air now passes out of the open end of the venturi, creating a negative pressure in the apparatus, which is transmitted to the paranasal sinuses when the palate is closed in the act of swallowing. The venturi is then closed again with the thumb and the procedure repeated until aerosolization of solution in the nebulizer is completed. When used in alternation with nebulization, suction from the venturi allows alternating partial emptying and filling of the paranasal sinuses with oxygen or air heavily laden with nebulized particles.



Drawing of the apparatus used in this study.

All treatments were given once daily, six days a week, and were continued up to four weeks. All patients were individually instructed in the correct use of the apparatus. The great majority of patients were treated in the clinic for the entire length of treatment and were under close supervision at all times. Only a few patients were allowed to take treatment at home, after preliminary training consisting of at least one week of daily clinic treatments.

After initial antral culture, with bacterial sensitivity tests in some instances, the appropriate antibiotic was selected. Penicillin treatments consisted of 250,000 units crystalline penicillin[8] in 2 cc. of 1 per cent ephedrine sulfate in saline solution, with rinses of 1.0 and 0.5 cc. distilled water each. Streptomycin[9] dosage was 0.5 Gm. of the calcium chloride complex, in 2 cc. of 1 per cent ephedrine sulfate in saline solution with 1.0 and 0.5 cc. distilled water rinses. Ephedrine treatments were identical except for the omission of antibiotics. Inactivated penicillin was used in addition to the ephedrine preparation in 5 control cases in which there was a decided psychosomatic component. Nebulization of solutions was effected with oxygen at 6 liters per minute flow except for a few of the patients treated at home who used a foot pump instead of oxygen as a source of power for nebulization. The time for a single treatment averaged thirty minutes. By keeping the volume of solutions identical and by using the same flow and uniform technic, we maintained the degree and length of time of application of negative pressure approximately equal in all cases.

In each patient, symptoms of headache, coryza, nasal obstruction, amount and nature of anterior and posterior nasal discharge, cough and expectoration were followed daily, as well as signs of possible toxic reactions. Examinations of the nose and throat with transillumination of the sinuses were conducted weekly, and in some cases interval sinus roentgenologic examinations were done. At the end of treatment roentgenograms were again made and compared with previous ones. A final nose and throat examination, antral puncture, aspiration of antral contents for culture and a final diagnostic irrigation were done, the latter to note any change in the amount and nature of the antral contents. An attempt was made to follow all patients' symptoms and signs of sinusitis during the first month after treatment and at later intervals.

It must be remembered that the program followed in this series of clinic patients is probably not the ideal one for obtaining optimal results. It is believed that treatments given several times daily would be superior in terms of continued relief of nasal obstruction and maintenance of a therapeutic local concentration of antibiotic drug within the sinuses. The one treatment a day method was used in this study because it was the most practical method that afforded strict daily control and supervision of individual clinic patients. It was also felt that administration of one massive treatment daily, six days a week for one month would be comparable to the use of four smaller daily treatments of over a two week period.[3]

Except for the separation of cases in which there were allergic manifestations, further breakdown of the series to consider factors such as duration of symptoms, severity of the disease and nature of antral contents was found to be impractical, as it resulted in groups containing very small numbers of cases.

In each case, separate evaluation was made of symptoms, physical signs, roentgenograms, antral contents and bacteriologic aspects. Improvement in the symptoms, physical and roentgen appearance was classified as being slight or none, moderate or decided, and the usual margin of human error prevailed in deciding in which category the individual cases belonged. In general those patients that at the end of treatment presented a normal appearing nose, had no symptoms and a normal roentgenogram were tabulated as showing decided improvement in each category. Those patients that did not have complete normality in each respect were classified as showing moderate, slight or no improvement, as seemed appropriate.

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[7] This apparatus may be obtained from the Inhalational Equipment Company, 248 East 119th Street, New York, the Oxygen Equipment Mfg. Corp., 405 East 62nd Street, New York, and the Vaponefrin Co., 6812 Market Street, Upper Darby, Pa.

[8] Supplied by Commercial Solvents Corporation and Premo Pharmaceutical Laboratories, Inc.

[9] Supplied by Merck & Co., Inc.

The quantity and gross nature of antral contents provided another measure of therapeutic effectiveness which was termed as decided when the final irrigation was entirely clear, moderate when an initial observation of broken down pus gave way to clumps or shreds, and slight to none when no change occurred or in cases of bilateral disease when there was only partial one-sided change. Bacteriologic changes could be determined by comparison of organisms cultured from the antrum before and at the end of treatment. In summarizing these changes, cases were grouped according to disappearance of all organisms, complete or partial disappearance of gram-positive or gram-negative organisms and, finally, as no change in bacteriologic observations.

Table 1.—*Improvement in Chronic Purulent Nonallergic Sinusitis Resulting from Aerosol Therapy with Negative Pressure*

Treatment Used	Number of Cases	A. Symptoms			B. Physical Examination			C. Roentgenogram			D. Antral Contents			
		Decided	Moderate	Slight or None	Decided	Moderate	Slight or None	Decided	Moderate	Slight or None	Decided	Moderate	Slight or None	Not Evaluated
Penicillin	23	8	7	8	7	8	8	3	8	12	6	4	9	4
Ephedrine sulfate	23	8	6	9	2	3	18	1	3	19	6	3	11	3

Table 2.—*Improvement in Chronic Purulent Allergic Sinusitis Resulting from Aerosol Therapy with Negative Pressure*

Treatment Used	Number of Cases	A. Symptoms			B. Physical Examination			C. Roentgenogram			D. Antral Contents			
		Decided	Moderate	Slight or None	Decided	Moderate	Slight or None	Decided	Moderate	Slight or None	Decided	Moderate	Slight or None	Not Evaluated
Penicillin	5	3	2	0	1	2	2	0	0	5	0	2	1	2
Ephedrine sulfate	7	2	3	2	1	1	5	0	1	6	0	0	5	2
Total	12	5	5	2	2	3	7	0	1	11	0	2	6	4

Table 3.—*Results in Streptomycin Aerosol–Negative Pressure Therapy of Chronic Sinusitis Due to Gram-Negative Infection*

Type	Number of Cases	A. Symptoms			B. Physical Examination			C. Roentgenogram			D. Antral Contents			
		Decided	Moderate	Slight or None	Decided	Moderate	Slight or None	Decided	Moderate	Slight or None	Decided	Moderate	Slight or None	Not Evaluated
Nonallergic	6	3	1	2	0	4	2	0	1	5	1	0	1	4
Allergic	4	2	1	1	0	1	3	0	1	3	1	0	2	1
Total	10	5	2	3	0	5	5	0	2	8	2	0	3	5

RESULTS

The penicillin and ephedrine control groups number 23 patients each. In all instances, some degree of involvement of the maxillary sinuses was present. In about half the cases these were the only sinuses found to be diseased; when multiple sinus infection occurred the ethmoids were involved more often than the frontals or sphenoids. The condition in about two thirds of the cases was bilateral. The average duration of the disease was eleven years; approximately half of the patients previously had had antral irrigations and/or nasal surgical treatment with temporary or no effect on the disease. The similar incidence of all these factors in both the penicillin-treated and ephedrine-treated patients justified the assumption previously made on the basis of history, physical signs and roentgen observations, that the two groups were comparable. This was further supported by an almost equal distribution of bacterial flora in the material studied from both groups of cases.

In many patients who presented themselves with symptoms suggestive of chronic sinusitis, complete otolaryngologic examination revealed only the presence of a purely allergic or vasomotor rhinitis, or of deviated septums, polyps or hypertrophied turbinates. In many instances of true chronic purulent sinusitis the observation of mechanical blocking of the sinus ostiums revealed factors amenable to surgical correction without which the introduction of antibiotic aerosol into the sinuses was impossible. In some patients dental foci had to be eradicated in order to control successfully the infection. Other cases were rejected because symptoms of chronic sinusitis were found to have solely a psychosomatic basis. Many of the patients with organic sinus disease had superimposed functional complaints which further complicated evaluation of results.

1. Comparison of Penicillin and Ephedrine Control Groups (table 1).—Symptoms: About equal numbers of patients in both ephedrine-treated and penicillin-treated groups showed decided, moderate and slight-to-absent symptomatic improvement (table 1, A). Qualitatively, the response to treatment was also similar. Some of the patients with severe long-standing complaints showed a dramatic change in symptoms. Striking relief of chronic headache was at times seen, concomitant with drainage of purulent secretions into the trap of the apparatus. Nasal obstruction was relieved temporarily for one to six hours or longer following treatment. In many of the patients showing a favorable response, anterior and posterior nasal discharge increased during the first three or four days of treatment and decreased gradually thereafter. The diminution of postnasal drip was accompanied by reduced cough and expectoration. In patients with associated bronchopulmonary infection, a significant decrease in cough and expectoration, with loss of most of the purulent element in the sputum, occurred only in the group treated with penicillin aerosol.

Physical Observations: Seven of the penicillin-treated patients showed decided and 8 showed moderate improvement. Two of the ephedrine-treated patients showed decided and 3 showed moderate improvement (table 1, B).

Roentgenograms: Eleven of the penicillin-treated patients showed decided or moderate improvement, while only 4 of the ephedrine control patients showed comparable changes (table 1, C).

Antral Contents: There were no over-all differences in 19 penicillin-treated and 20 ephedrine-treated patients. Half of the patients in each group showed no change in the character and amount of antral contents (table 1, D). However, of the patients showing fluid and broken down pus at the start of treatment, the condition in 5 out of 13 treated with penicillin cleared entirely, while 2 out of 11 patients treated with ephedrine showed disappearance of the antral pus.

Bacteriologic Observations: Mixed infections were found in about 60 per cent of all the cases. The commonest organisms found in the antrums in order of incidence were: Hemophilus influenzae, hemolytic Staphylococcus aureus, pneumococci and microaerophilic streptococci. The bacteriologic changes before and after treatment are summarized in table 4. Some changes in bacterial flora could be seen to occur in the control cases in which the ephedrine preparations were used, but changes tended to be more pronounced in the patients that were treated with penicillin. Only a small number of patients showed complete disappearance of all organisms at the end of treatment, 2 in the penicillin group and 3 in the ephedrine control group. Six of the penicillin group showed disappearance of all gram-positive organisms with persistence of the original, or appearance of new, gram-negative flora at the end of treatment. This also is seen in sputum cultures of patients with bronchopulmonary infection treated with penicillin aerosol.[1b] None of the ephedrine control cases showed this change. There was no bacteriologic change in 10 ephedrine control patients and in 5 patients treated with penicillin.

TABLE 4.—*Bacteriologic Changes in Chronic Sinusitis*

Type case	Nonallergic Patients		Allergic Patients	
Treatment	*Penicillin*	*Ephedrine Sulfate*	*Penicillin*	*Ephedrine Sulfate*
Disappearance of organism	2	3	..	..
Complete disappearance of gram-positive, with persistence or appearance of gram-negative flora at end of therapy	6	..	1	2
Partial disappearance of gram-positive from mixed flora at end of therapy	5	4	..	1
Appearance of gram-positive organisms	..	2	..	..
No change	5	10	3	4
No observations made	5	4	1	..
Total	23	23	5	7

Direct demonstration of the entrance of penicillin into the antrums in cases of known purulent sinusitis was possible by determination of penicillin levels in pus aspirated from the antrum immediately after a penicillin treatment. In 6 cases in which observations were made concentrations of penicillin ranging from 0 to 8.0 units per cubic centimeter of antral pus were found. Of these patients, 3, who showed 1.4, 7.0 and 8.0 units per cubic centimeter, also had improvement in antral contents and bacteriologic observations. Two patients, with 0 and 0.8 unit per cubic centimeter, showed no improvement in these respects, while in one test resulting in a penicillin level of 0.7 unit per cubic centimeter the antral flora became gram-negative.

The patients showing anaerobic bacterial flora (7 with microaerophylic streptococci, 2 with unclassified anaerobes, 1 with anaerobic gram-negative rods) showed in general a poor response to aerosol treatment given once daily. All 6 such patients that had ephedrine control treatment showed no improvement; of these, 4 were subsequently given penicillin aerosol and 2 improved. Three other patients were treated with penicillin and 1 with streptomycin, without significant improvement. One patient with an anaerobic infection, who showed no change on a full course of penicillin aerosol followed by six antral irrigations, was cured by a right maxillary antrostomy, and has remained completely asymptomatic and clinically free of disease after an eight months' follow-up. In another similar case the patient, who had received a full course of penicillin aerosol with no improvement, was cured clinically by seventeen antral irrigations over a period of five weeks and has likewise remained free of disease after a one month follow-up.

Patients That Received Both Penicillin and Ephedrine Treatment: A group of 10 patients, who are included in the series already presented, afforded an opportunity to serve as their own controls, since all 10 patients were treated with ephedrine aerosol with no improvement and were then given penicillin aerosol. With the latter treatment, there were also therapeutic failures with penicillin in 5 of the 10 cases. Four patients showed moderate over-all improvement with penicillin as compared with ephedrine and 1 patient showed decided improvement with penicllin.

II. Allergic Patients.—The number of patients with predominantly allergice factors was too small to permit comparison between the penicillin-treated and ephedrine-treated patients (table 2). Nine out of 12 patients showed pansinusitis, and 8 had a history of previous polypectomies. As a rule, symptomatic relief was obtained as in the nonallergic patients and was enhanced by the use of oral antihistaminics. In some instances improvement on physical examination could be found, but there were equally few or no changes in roentgenograms, antral contents or bacteriologic observations in both series (table 4).

III. Streptomycin Therapy.—A group of 10 patients with complete or predominant gram-negative flora was treated with streptomycin aerosol. The results, classified according to the presence or absence of allergic factors, are shown in table 4. It can be seen that frequency of symptomatic relief tended to be similar to that obtained with ephedrine or penicillin in comparable types of cases. Objective evidence of improvement in physical examination, roentgenograms, antral contents or bacteriologic studies was slight. Of 7 patients studied bacteriologically before and after treatment, 4 showed disappearance of the original gram-negative organisms at the end of treatment, but at this time 5 patients showed the presence of some gram-negative bacteria in the antrums. In 1 case, Escherichia coli, which at the start of treatment was sensitive to 0.6 microgram of streptomycin per cubic centimeter, showed resistance to 10 micrograms per cubic centimeter at the end of fifteen treatments. In another case E. coli was obtained at the end of treatment which was resistant to 100 micrograms of streptomycin per cubic centimeter.

IV. Follow-Up.—In 20 of the penicillin-treated patients, follow-up observations were made within the first month after treatment. Ten of these patients maintained the moderate or decided improvement they had made during therapy. Seven patients (a third of the total) showed recurrence of symptoms during this time; of these 2 had good over-all results, 3 had moderate improvement and 2 poor results at the end of their courses of treatment. Three patients, all with poor results, were referred for other forms of treatment. Because of the relatively short time the study was in progress, late follow-ups (four to eight months posttreatment, including the winter season) could be obtained in only 6 penicillin-treated patients. The disease in all of these was severe, averaging ten years in duration. Although 4 of these patients had flare-ups in symptoms sometime during this period, they all responded to further courses of penicillin aerosol therapy.

Of the 18 ephedrine-treated patients seen during the first month after treatment, 2 maintained improvement, 6 had recurrences and 10 showed poor results and were given penicillin aerosol.

Similar frequency of recurrences was noted in the small number of patients comprising the allergic groups and streptomycin-treated patients.

V. Reactions.—Of the 23 nonallergic and 5 allergic patients who received penicillin aerosol, 3 showed reactions that were severe enough to warrant cessation of treatment. One patient had a fever, pruritus and generalized erythema after nine treatments, and another had headache, chills and urticaria after thirteen treatments. Both these reactions subsided three days after discontinuation of penicillin aerosol and administration of tripelennamine hydrochloride (pyribenzamine hydrochloride®), 50 mg. four times daily. A patient with previous acute glomerulonephritis, who was receiving his second course of penicillin aerosol treatment for hemolytic streptococcus sinusitis, experienced severe myositis and fever. This case, which was studied at the Presbyterian Hospital and is believed to represent an unusual reaction to penicillin, will be the subject of a future report.[10] An additional patient who previously had had repeated oral penicillin aerosol inhalations for bronchiectasis, during which a sore red tongue had developed, had to discontinue treatments after five days because of the onset of this condition.[1h]

There were no complaints of local irritation of the nose or throat due to penicillin aerosol. Several patients had a brownish coating of the dorsum of the tongue while receiving penicillin aerosol. This was asymptomatic but persisted for several weeks after cessation of treatment.

Most of the patients receiving streptomycin complained of severe nasal irritation and coryza, but no systemic toxicity was noted. One patient with associated bronchial asthma had an exacerbation of this condition throughout her course of streptomycin therapy (eighteen days). The asthma subsided three days after treatment was discontinued. No local or systemic symptoms from ephedrine administration were seen.

COMMENT

It is recognized that corrective surgical procedures of obstructions to drainage from the sinuses, necessary to the proper application of aerosol therapy in some of our cases, in themselves caused some of the improvement noted in both penicillin-treated and ephedrine-treated patients. In like manner, a certain amount of therapeutic credit is due to the power of suggestion of the aerosol apparatus over some patients with psychosomatic components of the disease. Inactivated penicillin was used in those ephedrine control cases with an obvious functional element in an attempt to minimize the suggestive effect of the antibiotic.

Symptomatic improvement of sinusitis during treatment in the cases studied apparently does not depend on the administration of penicillin, but is the result of the improved ventilation and drainage of the sinuses which both methods of treatment provided. The decrease of cough and expectoration seen in cases of sinusitis with associated bronchopulmonary infection can be attributed to the topical application of penicillin aerosol in the lungs during treatment. With equal conditions of sinus drainage, the decided improvement of the physical appearance of the nose and transillumination of the sinuses in the penicillin series suggests that penicillin is the responsible agent. The small number of cases in both categories in which there was complete or partial roentgenographic resolution was not entirely unexpected in this group of patients with chronic disease, a number of whom had had repeated sinus operations and many of whom had had sinus disease for ten or more years. However, the figures show a tendency toward more favorable results in the patients that received penicilin aerosol. Better results were also obtained in the penicillin-treated patients showing fluid broken down pus in the antrums, indicative of a severe degree of infection; however, no significant differences in change of antral contents were noted between the two series when considered as a whole. The bacteriologic changes observed in the penicillin-treated group are thought to be the result of the local bacteriostatic or bactericidal action of penicillin within the paranasal sinuses.

Burtoff,[11] using one or two weekly antral irrigations with daily instillation of penicillin in solution into the antrums in cases of chronic maxillary sinusitis, observed no clinical difference in the results of treatment with saline solutions or penicillin. The use of penicillin, however, resulted in sterile antral cultures after the third or fourth irrigation.

The therapeutic action of ephedrine aerosol and negative pressure is evident in the control cases in which there was improvement. Although it is appreciated that this is a small group, the addition of penicillin to the treatment, in cases of infection with penicillin-sensitive organisms, appears to result in an enhancement of the therapeutic effect. Further suggestive evidence that penicillin aerosol is superior to ephedrine aerosol alone is provided by the results in the 10 patients who served as their own controls.

The response of cases of allergic sinusitis to either ephedrine or ephedrine-penicillin treatment is not pronounced. The swollen state of the allergic nasal and sinus mucous membrane, together with its tendency to develop polypoid degeneration, constitutes a barrier to the ventilation and drainage of the sinuses and to the entrance of penicillin aerosol.

Streptomycin aerosol treatment of chronic sinusitis due to infection with gram-negative bacteria has its limitations in that such organisms are prone to become resistant to the antibiotic in a relatively short time. With such time limitations, intensive treatment several times daily seems indicated; however, the local irritative properties of streptomycin may limit the frequency of administration. Doses of 0.2 or 0.3 Gm. three or four times a day may be better tolerated than those used in this study. That in isolated cases this treatment is successful is shown in 2 of our patients with mixed gram-positive and gram-negative infection, who after treatment with penicillin aerosol still showed lack of improvement and the presence of gram-negative organisms in the antrums, which were subsequently eradicated by streptomycin therapy.

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[10] Fisk, S. C., and Curran, G. L.: To be published.

[11] Burtoff, S.: Evaluation of Diagnostic Methods Used in Cases of Maxillary Sinusitis, with a Comparative Study of Recent Therapeutic Agents Employed Locally, Arch. Otolaryng. **45**: 516-542 (May) 1947.

In order to obtain optimal results with antibiotic aerosol therapy, it is recommended that antral cultures and antibiotic sensitivity tests of organisms be made prior to institution of treatment and that the appropriate antibiotic be selected as was done in this series. When direct antral cultures are not feasible, nasal cultures of the purulent overflow from the sinuses should be taken.

Although the results obtained with penicillin aerosol tended to be better than with ephedrine aerosol, the over-all effect of penicillin aerosol therapy, as used in these clinic patients with chronic sinusitis, does not justify enthusiasm for the single treatment per day method. Only 3 out of the entire penicillin-treated group showed decided improvement in all five categories studied, and 2 of these 3 patients had a recurrence of symptoms and signs two months after cessation of therapy. In considering the penicillin-treated group as a whole, it is noted that a high percentage of recurrences was evident even after a brief follow-up period. It should be noted also that 7 of the 23 patients treated with penicillin aerosol showed little or no improvement in their disease.

In the present series the most gratifying subjective and objective results were obtained in those patients with severe long-standing chronic purulent sinusitis presenting a history of multiple nose and sinus operations and irrigations with little or no relief of symptoms. These patients, almost without exception, did exceedingly well while receiving penicillin aerosol, but recurrence of symptoms after cessation of treatment was the general rule. These flare-ups responded satisfactorily to subsequent courses of penicillin aerosol with negative pressure. Many of these patients reported that this therapy gave them more relief than they had been afforded by any other form of treatment. A number of children were treated successfully, and it was felt that the method was of definite value in the treatment of sinusitis in children, as the use of the apparatus was learned rapidly, and the treatments were taken without resistance or fear of pain on the part of the patient. The same considerations held true in the cases of the adults who were unable to tolerate sinus irrigations. Another group of patients that did well was the one with concomitant chronic sinus infection and chronic pulmonary disease, for the penicillin aerosol had a simultaneous beneficial effect on both processes.

In comparison of the relative merits of antibiotic aerosol therapy in the ordinary case of chronic purulent sinusitis with other forms of treatment of this disease (nasal shrinkage and suction, sinus irrigations, Proetz displacement therapy and the building up of general body nutrition and resistance) it was the clinical impression of the investigator (W. M. G.) with previous experience in these methods that penicillin aerosol-negative pressure treatment alone, given once daily, was not superior to the accepted forms of treatment. Better results may be expected with three or four daily treatments. It was felt further that biweekly or triweekly irrigations of the infected sinus or sinuses gave a more rapid response than did a single daily treatment with penicillin aerosol. Although in this study no series of patients was treated with other methods, good results were obtained with antral irrigation and surgical treatment in isolated cases of severe anaerobic maxillary sinusitis in which there had been no improvement from penicillin aerosol therapy.

In the ordinary case of chronic purulent sinusitis, it is thought that optimal results with this method may be obtained when it is used several times a day in conjunction with periodic irrigations of the appropriate sinuses. In this way the purulent sinus contents would be evacuated, thus making possible direct application of the antibiotic aerosol to the diseased mucosa. Repeated sinus irrigations at intervals of about a week would serve to keep the mucosa exposed to the action of the aerosol. By using this method in conjunction with penicillin aerosol treatments taken at home three or four times daily, one might reduce the frequency of sinus irrigations and achieve quicker control of the infection. Dosage of 100,000 units of crystalline penicillin in 1 cc. of 1 per cent ephedrine sulfate in saline solution or 0.25 per cent phenylephrine hydrochloride (neo-synephrine hydrochloride®), followed by two 0.5 cc. distilled water rinses, is suggested. A study of this method of treatment is contemplated at present.

It is emphasized that competent otolaryngologic appraisal and pretreatment surgical correction of any mechanical blockage of sinus ostiums are absolute prerequisites to the intelligent application of aerosol-negative pressure therapy.

SUMMARY AND CONCLUSIONS

The results in 68 cases of chronic purulent sinusitis with aerosol-negative pressure therapy once daily with and without antibiotics are presented. Comparison of results in 46 nonallergic patients—23 treated with penicillin-ephedrine aerosol and negative pressure and 23 treated similarly without penicillin—provides suggestive evidence that the antibiotic enhances the therapeutic effect. In 12 patients with chronic sinusitis with predominantly allergic factors there was no significant improvement from treatment by the methods described. Ten patients with chronic sinusitis infection due to gram-negative organisms treated with streptomycin aerosol showed in general a poor therapeutic response.

Clinical impressions as to the relative value of penicillin aerosol with negative pressure given once per day as compared with the usual methods of treatment of chronic purulent sinusitis are presented and indications for this type of therapy are suggested. In the ordinary case of chronic purulent sinusitis, antibiotic aerosol therapy given once daily appears to have no superiority over accepted methods of treatment of sinusitis. This method is suggested, however, as a treatment of choice in cases of long-standing chronic disease in patients who have had repeated sinus irrigations and/or extensive sinus surgical treatment with poor response, children and adults who do not tolerate sinus irrigations and in patients with associated chronic bronchopulmonary disease. It is felt that optimal results with this method of therapy would be obtained by combination of multiple daily aerosol-negative pressure treatments with weekly sinus irrigations.

EXPERIENCES WITH NITROGEN MUSTARD THERAPY

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Until recently, the palliative treatment of lymphoblastoma and other neoplastic diseases has depended almost entirely on the use of irradiation by roentgen rays or radium. With the recent introduction of the nitrogen mustards as potential therapeutic agents in this field, a concentrated effort has been made by various groups of investigators [1] to determine whether there are any specific indications for the use of these substances in place of, or as an adjunct to, irradiation therapy. Since it appears that the biologic effects of the nitrogen mustards and the qualitative clinical response caused by them are similar to, if not identical with, those exerted by irradiation,[2] and since their availability and ease of administration confer definite advantages over irradiation therapy, it becomes a matter of some importance to know what may be expected of these agents when they are employed under certain clinical conditions.

Two fundamental questions are raised. First, is there any advantage to the patient in the use of nitrogen mustard instead of irradiation? An answer to this question can be provided only by comparing, over a protracted period, the results obtained by the administration of nitrogen mustard alone with those obtained by the use of irradiation alone in a similar group of cases. Second, in cases in which the patients have failed to respond or have become refractory to irradiation, is there reasonable hope that nitrogen mustard can still effect clinical remissions? It is the primary purpose of this report to attempt to answer this latter question by an analysis of the results of nitrogen mustard therapy in certain cases in which the patients have been observed at the Mayo Clinic in the sixteen months prior to writing. We are not in a position to provide an answer to the first question, since our experience with regard to the lymphoblastomas has largely been limited to cases in which the disease had been present for a long time and had been treated extensively by irradiation and in which a greater or lesser degree of resistance to irradiation had developed. Secondary objectives of this report will be to present data on nitrogen mustard therapy in diseases other than lymphoblastoma and to call attention to some untoward reactions to this agent.

For a consideration of the fundamental nature of the nitrogen mustards and their mode of action, the reader is referred to the report of Gilman and Philips.[2b] The immediate toxic effects of these agents and their effect on the hemopoietic and other tissues have been described by Gilman and Philips [2b] and by Jacobson and others.[1b] The immediate toxic effects of the administration of these agents, notably nausea and vomiting, do not seem to be a matter of much concern, since they are transient and often tend to decrease in severity during the course of treatment. However, the profound effects of nitrogen mustard on the hemopoietic tissues may result in anemia, leukopenia or thrombocytopenia of severe degree. This makes it mandatory that the physician employing these agents warn the patient of this hazard, that he follow the blood cell counts carefully for at least four to five weeks after therapy has been discontinued and that he be prepared to treat severe leukopenia or thrombopenia should such serious complications arise.

METHOD OF TREATMENT

The nitrogen mustard employed in all of the cases which form the basis of this report was methyl-bis (β-chloroethyl) amine hydrochloride. With few exceptions, a course of treatment consisted of intravenous injections, on four consecutive days, of 0.1 mg. of this material per kilogram of body weight. The total dose for any course, therefore, was 0.4 mg. per kilogram of body weight. In a few cases, it was necessary, because of excessive nausea and vomiting, to lengthen the interval between injections or to terminate the treatment after two or three injections, instead of the usual four, had been administered. It has been our experience that 150 to 200 mg. of pyridoxine hydrochloride, given intravenously at the time of the injection of the nitrogen mustard, often will reduce the severity of the nausea and vomiting which so frequently follow the administration of the latter. As a general rule, we have permitted six weeks to elapse between any two courses of nitrogen mustard, although, in a few instances in which more intensive treatment was indicated and the blood cell counts were satisfactory, we have given a second course between four and six weeks after the first.

In some of our cases of Hodgkin's disease and lymphosarcoma, because of a lack of response to nitrogen mustard, it seemed expedient to return to the use of roentgen therapy alone or to combine the two forms of treatment. In no case, however, did we return to roentgen therapy or to the combined treatment after the administration of nitrogen mustard was begun, unless it became apparent that the use of nitrogen mustard alone had failed to produce and maintain improvement. By proceeding on this basis, it seemed unlikely that any confusion would arise as to which agent was responsible for any effects noted.

RESULTS OF TREATMENT

In attempting to evaluate the effect of therapy on lymphoblastomas and other neoplastic diseases, it seems justifiable that one base judgment only on whether or not the agent employed significantly altered the fundamental lesions and prolonged the life of the patient, in relative comfort, to an extent significantly beyond what one might expect had the agent not been used. In some cases of Hodgkin's disease and lymphosarcoma, the disease runs a surprisingly indolent and protracted course, while in other cases, in which the histologic changes are essentially the same, the disease progresses much more rapidly. This variation makes the evaluation of therapy difficult. One, therefore, should be reasonably conservative in evaluating the results of treatment of this disease.

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[1] (*a*) Goodman, L. S.; Wintrobe, M. M.; Dameshek, W.; Goodman, M. J.; Gilman, A., and McLennan, M. T.: Nitrogen Mustard Therapy, J. A. M. A. **132:** 126-132 (Sept. 21) 1946. (*b*) Jacobson, L. O.; Spurr, C. L.; Barron, E. S. G.; Smith, T.; Lushbaugh, C., and Dick, G. F.: Nitrogen Mustard Therapy, J. A. M. A. **132:** 263-271 (Oct. 5) 1946. (*c*) Wintrobe, M. M.; Huguley, C. M., Jr.; McLennan, M. T., and Lima, L. P. deC.: Nitrogen Mustard as a Therapeutic Agent for Hodgkin's Disease, Lymphosarcoma and Leukemia, Ann. Int. Med. **27:** 529-540 (Oct.) 1947.

[2] (*a*) Goodman et al.[1a] (*b*) Gilman, A., and Philips, F. S.: Biologic Actions and Therapeutic Applications of the B-Chloroethyl Amines and Sulfides, Science **103:** 409-415 (April 5) 1946.

The subjective improvement which victims of these diseases note as a result of nitrogen mustard therapy, even after the lesions have become refractory to irradiation, is often pronounced. Diminution or disappearance of fever, increase in appetite and strength and decrease or absence of pruritus, for varying periods, are the rule, particularly after the first one or two courses. Yet, in our experience, these primarily subjective signs of improvement may be out of proportion to the strictly objective evidences of improvement, such as decrease in size of the lymph nodes or spleen, shrinking of pulmonary lesions, resorption of pleural fluid or regression of skeletal lesions. The true therapeutic efficacy of any agent is reflected in its ability to, at best, cause regression or resolution of existing lesions, or, at least, to prevent progression of the disease during the period of its utilization. For these reasons, we do not stress, in this report, the transient subjective indications of improvement; rather, we have sought to evaluate the results of therapy on the basis of objective changes in the lesions, the presence or absence of evidences of progression of the disease during treatment and the mortality rate during the period of observation.

TABLE 1.—*Results of Therapy in 18 Cases of Advanced Hodgkin's Disease*

				Behavior of Lesions During Period of Observation			
Case	Duration, Mo.*	Period of Observation, Mo.†	Courses ‡	Regression of Lesions	Progression of Lesions	Development of New Lesions	Clinical Result
1	36	2	1 NM	+	—	+	Died of unrelated disease. Necropsy showed new progressing lesions
2	24	10	3 NM, 1 RT, 1 NM and RT	—	+	+	Patient's condition deteriorated
3	16	4	2 NM	—	+	—	Died of progression of disease
4	72	5	2 NM	—	+	+	Died of progression of disease
5	132	6	2 NM	±§	—	—	Condition essentially unchanged
6	22	9.5	3 NM, 2 RT	+	—	+	Died of progression of disease
7	12	13	5 NM, 1 RT	—	+	+	Patient's condition deteriorated
8	45	6	4 NM	—	+	—	Patient's condition deteriorated
9	13	4.5	2 NM	—	+	—	Died of progression of disease
10	27	3	2 NM	—	+	—	Died of progression of disease
11	24	3	1 NM, 1 RT	—	+	—	Died of progression of disease
12	29	6	3 NM	±§	+	—	Patient's condition deteriorated
13	30	3	1 NM	—	+	—	Died of progression of disease
14	27	6	2 NM	±§	—	—	Condition essentially unchanged
15	67	4	1 NM	—	—	—	Condition essentially unchanged
16	36	9	1 NM	±§	+	—	Died after pneumonectomy for progressive pulmonary lymphoma
17	23	3	1 NM	—	+	—	Died of progression of disease
18	94	12	2 NM, 2 NM and RT	±§	—	—	Condition essentially unchanged

* Before administration of nitrogen mustard.

† After the administration of nitrogen mustard was begun.

‡ NM denotes nitrogen mustard; RT denotes roentgen therapy.

§ Some of the lesions regressed, while others were unaffected or progressed. *In case 16 there was a complete remission of lesions of the superficial* lymph nodes for nine months, but the pulmonary lesion continued to progress.

Hodgkin's Disease.—The results of nitrogen mustard therapy, alone or in combination with irradiation therapy, in 18 cases of advanced Hodgkin's disease are summarized in table 1. In each of these cases, microscopic examination of a specimen of a lesion disclosed "lymphosarcoma, Hodgkin's type." All of the 18 patients previously had been treated repeatedly with roentgen rays, and the majority of the patients had noticed that their favorable response to this type of therapy had become less pronounced with each succeeding series of treatments.

In 14 of these cases either the patients died of progression of the disease or their physical condition deteriorated clinically during the period of observation after the institution of nitrogen mustard therapy. In cases 1 and 16, the death of the patients was not directly attributable to Hodgkin's disease but the disease obviously had progressed by the time death occurred. In this group of 14 cases, the duration of the disease prior to institution of nitrogen mustard therapy ranged from 13 to 72 months and averaged 31.8 months. In 5 of these cases, new lesions developed during the period of observation. The time that elapsed between the institution of nitrogen mustard therapy and the development of the new lesions ranged from 2 to 12 months and averaged 9 months. In 12 of the 14 cases, some or all of the original lesions showed clinical evidence of progression within 1 to 5.5 months after institution of nitrogen mustard therapy, the average being 2 months. In the 8 cases in which the patients died of progression of the disease, the duration of life after the institution of nitrogen mustard therapy ranged from 3 to 9.5 months and averaged 4.3 months.

In 4 cases, the clinical condition of the patients at the end of the period of observation apparently was the same as it had been when the administration of nitrogen mustard was started. In this group, the duration of the disease prior to the institution of nitrogen mustard therapy ranged from 27 to 132 months and averaged 80 months.

In the 18 cases of Hodgkin's disease, the lesions which showed measurable regression in response to nitrogen mustard, or to combined nitrogen mustard and irradiation therapy, were almost entirely confined to the lymph nodes and spleen. Lesions of other organs showed little or no response. In 6 of the 7 cases in which pulmonary lesions were present, the therapy had no effect on these lesions, but in the remaining case a combination of nitrogen mustard and roentgen therapy produced moderate improvement in extensive pulmonary lesions after two previous courses of nitrogen mustard alone had been without effect. At the end of fifteen weeks these lesions again progressed and did not respond to further therapy of the combined type.

The skeleton was involved in 3 cases. Regression of the lesions did not occur in any of these cases as a result of therapy. In 2 of these cases, the lesions progressed during the period of observation.

There was clinical evidence of involvement of the liver in 2 cases. The therapy did not produce any improvement in 1 of these cases. In the other case, the first course of nitrogen mustard produced a significant decrease in the size of the liver, which lasted for six weeks. The enlargement recurred at the end of this period and was not relieved by subsequent courses of nitrogen mustard.

In 6 cases, the erythrocyte count was less than 3,500,000 per cubic millimeter of blood. Leukopenia was present in 2 cases in which the anemia was severe. In these cases, the leukocyte count was less than 2,800 per cubic millimeter of blood. Nitrogen mustard, administered alone or in combination with roentgen rays, did not produce any significant improvement in the anemia or leukopenia in any of these cases. Blood transfusions also were used in some cases, but they likewise did not produce any improvement.

Lymphosarcoma.—Table 2 shows the results of nitrogen mustard in 10 cases of lymphosarcoma. The duration of the disease prior to the institution of nitrogen mustard therapy ranged from 4 to 52 months and averaged 17.6 months. In 6 cases, death occurred from progression of the disease. In these cases, the duration of life after the institution of nitrogen mustard therapy ranged from 1 to 6 months and averaged 3.5 months.

In case 21, the response to nitrogen mustard therapy was more rapid and more complete than it was in any of the other cases of lymphosarcoma. The patient had not been treated previously. Evidence of enlargement of the lymph nodes, spleen and liver disappeared within one week after the administration of nitrogen mustard was begun. The clinical remission lasted for 2.5 months. Enlargement of the spleen and of some of the lymph nodes recurred at the end of this period. In case 24, evaluation of therapy was based on symptoms alone, as the disease was confined to retroperitoneal lymph nodes. There were no physical observations, and the diagnosis was established by laparotomy and biopsy. Abdominal pain of incapacitating degree was the only symptom. This was relieved completely for 4.5 months by the initial course of nitrogen mustard. The pain recurred at the end of this period.

In case 25, enlargement of the spleen and enlargement of the liver were the principal physical observations. Remission could not be considered complete because, despite a decided decrease in the size of these organs as a result of therapy, their size still did not approach normal. Enlargement recurred at the end of six months. In this case, partial remission is to be compared with a partial remission of similar degree which lasted twelve months and was produced by the initial therapy, which consisted of a series of applications of roentgen rays.

Mycosis Fungoides.—Our initial experience with nitrogen mustard in the treatment of mycosis fungoides at the Mayo Clinic has been reported previously.[3] Since the publication of this report, several other patients with mycosis fungoides have been treated. Our knowledge of the value of nitrogen mustard in this disease, however, has not increased to the point where new or more definite conclusions are warranted. The following statements may be made, on the basis of our experience to date. When lesions of mycosis fungoides respond favorably to nitrogen mustard, the effect is apparently identical with that of roentgen rays. The effectiveness of nitrogen mustard therapy tends to diminish with repeated courses. In this disease, development of resistance to roentgen therapy constitutes an indication for a trial of nitrogen mustard, for two reasons. First, further remissions sometimes can be produced by nitrogen mustard. Second, sensitivity of the lesions to roentgen rays may return after the patient has been treated for weeks or months with nitrogen mustard. By thus alternating the two forms of therapy, it is sometimes possible to maintain the patient in relative comfort for a period considerably longer than would be possible by using roentgen rays

TABLE 2.—*Results of Therapy in 10 Cases of Lymphosarcoma*

				Response to Therapy †				
Case	Duration, Mo.*	Histologic Diagnosis	Previous Roentgen Therapy	First Course	Second Course	Third Course	Period of Observation, Mo.‡	Clinical Result
19	6	Lymphosarcoma	+	None	......	......	1	Died of progression of disease
20	6	Reticulum cell lymphosarcoma	+	None	......	......	3	Died of progression of disease
21	6	Lymphosarcoma	—	Complete remission for 2.5 mo.	......	......	4	Patient did not return for further treatment
22	4	Reticulum cell lymphosarcoma	+	None	None (roentgen therapy)	None (roentgen therapy)	5.5	Died of progression of disease
23	13	Reticulum cell lymphosarcoma	+	None	......	......	3	Died of progression of disease
24	27	Lymphosarcoma	+	Complete remission for 4.5 mo.	Unknown	......	4.5	
25	13	Lymphosarcoma §	+	Partial remission for 6 mo.	Unknown	......	7	
26	37	Lymphosarcoma	+	None	......	......	6	Died of progression of disease
27	52	Lymphosarcoma	+	Partial remission for 1 mo.	None	None	6	Patient's condition essentially unchanged
28	12	Lymphosarcoma §	—	None	None	......	2.5	Died of progression of disease

* Before administration of nitrogen mustard.
† Therapy consisted of 1 course of nitrogen mustard unless otherwise indicated.
‡ After administration of nitrogen mustard was begun. § Diagnosis made by examination of bone marrow.

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3. Kierland, R. R.; Watkins, C. H., and Shullenberger, C. C.: The Use of Nitrogen Mustard in the Treatment of Mycosis Fungoides, J. Invest. Dermat. 9: 195-201 (Oct.) 1947.

alone. Microscopic examination of lesions of mycosis fungoides before and after the use of nitrogen mustard reveals that the number of cells constituting the infiltrate in these lesions may be diminished as a result of this therapy, but the histologic picture of mycosis fungoides is still evident in the specimens obtained after treatment. More work of this kind should be done.

Cutaneous Lymphoblastoma.—We have treated 1 patient, a woman aged 41 years, who had suffered for a year from two erythematous infiltrating lesions of the skin of the face, associated with severe pruritus. A specimen of one of the lesions was examined microscopically three months after the onset, and the histologic picture was characteristic of lymphoblastoma. The patient exhibited no other evidences of lymphoblastoma. Two courses of roentgen therapy failed to prevent progression in the size of the lesions. A course of nitrogen mustard was then given. This promptly relieved the pruritus and caused the lesions to regress completely in the next three months. Follow-up data, which were obtained at the end of five months, revealed that the patient was entirely well and had not had any recurrence.

Leukemic Reticuloendotheliosis.—Two patients who had leukemic [illegible] were treated with nitrogen mustard. One of these, a man aged 59 years, died twenty-five days after the completion of the therapy. A clinical picture of granulocytopenia developed before the patient died. The other patient was a man aged 75 years who had had severe cutaneous manifestations of reticuloendotheliosis for three years. The blood picture was characteristic. The patient had not had any previous roentgen therapy, and he was not benefited in any way by a course of nitrogen mustard.

Malignant Neoplasms.—In 7 cases of malignant neoplasms of various types, nitrogen mustard therapy was used because all other therapeutic measures were deemed impossible or inadvisable. The clinical data in these cases are summarized in table 3.

Polycythemia Vera.—The obviously profound effect which nitrogen mustard exerts on the bone marrow naturally suggests its use in the attempt to control polycythemia vera. Jacobson and others[1b] have reported remissions lasting up to 12 months as a result of nitrogen mustard therapy. Despite some excellent results which have been obtained in the treatment of this disease with radiophosphorus, Hall and one of us (C. H. W.)[4] have expressed the opinion that the incidence of acute leukemia among the patients treated with this agent may be disturbingly high. This constitutes another reason for evaluation of the therapeutic potentiality of nitrogen mustard in this disease.

To date, we have employed nitrogen mustard therapy in 8 cases of polycythemia vera. A protracted follow-up period will be necessary before the results of this therapy can be evaluated and compared with those obtained with other methods of treatment. At this time, our experience may be summarized as follows: One patient obtained complete symptomatic and hematologic remission for 13 months after one course of nitrogen mustard. Three other patients have reported normal blood cell counts and absence of symptoms between 2 and 3 months after the initial courses. Two patients have reported hematologic and symptomatic relapses between 2 and 3 months after their initial therapy, and 1 of them has received a second course. Follow-up data in the other 2 cases are not available at this time.

We believe that the initial results are sufficiently encouraging to warrant further investigation of the usefulness of nitrogen mustard in the treatment of polycythemia vera.

TABLE 3.—*Results of Therapy in 7 Cases of Malignant Neoplasms**

Case	Site of Tumor	Histologic Diagnosis	Duration †	Courses of Nitrogen Mustard	Response	Period of Observation ‡	Clinical Results
29	Bronchus	Squamous cell carcinoma, grade 4	16 mo.	1	None	6 weeks	Condition of patient deteriorated; carcinoma cells in sputum 6 weeks after treatment
30	Bronchus	Carcinoma cells present in sputum	10 mo.	2	None	6 mo.	Died of progression of disease
31	Breast; metastatic involvement of cervical and supraclavicular lymph nodes	Adenocarcinoma	12 mo.	3	None	6 mo.	Disease progressed
32	Esophagus	Probably adenocarcinoma, grade 4	5 weeks	1	None	2 mo.	Died of progression of disease
33	Bronchus	"High grade carcinoma"	4 mo.	1	Partial relief of obstructive symptoms for 4 weeks	4 mo.	Died of progression of disease
34	Primary site undetermined; metastatic involvement of supraclavicular and inguinal lymph nodes	Adenocarcinoma, grade 4	2 mo.	1	Subsequent use of nitrogen mustard or irradiation (elsewhere) did not produce any improvement	4 mo.	Died of progression of disease
35	Rectovesical space; metastatic involvement of liver, pancreas, lungs and skeletal muscles	Fibrosarcoma	16 mo.	1	None	5 weeks	Died of progression of disease

* In addition to cases of lymphoblastoma. † Before administration of nitrogen mustard.
‡ After administratalon of nitrogen mustard was begun.

UNTOWARD EFFECTS OF NITROGEN MUSTARD THERAPY

It is apparent that the accepted therapeutic dose of nitrogen mustard, while safe for the large majority of patients, may be severely toxic for some. It must become obvious to the physician who employs this agent frequently that the hemopoietic tissues of some patients are unusually sensitive to the action of this drug. Unfortunately, one cannot predict which patients are likely not to tolerate it. Among the patients with Hodgkin's disease whom we have treated were a few who exhibited anemia, leukopenia and thrombopenia prior to the institution of nitrogen mustard therapy. The use of this agent did not have any obviously severe effect on the blood cell counts of these patients. On the other hand, in a few cases in which the patients had normal erythrocyte, leukocyte and thrombocyte counts before nitrogen mustard therapy was begun, suppression of bone marrow activity reached such degree in the second to fourth week after the last injection of nitrogen mustard that neutrophil and thrombocyte counts reached levels at which serious complications may arise.

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[4] Hall, B. E., and Watkins, C. H.: The Medical Use of Radioactive Isotopes: Radioactive Isotopes in Hematologic Disturbances and Neoplasms, Am. J. M. Sc. 213: 621-628 (May) 1947.

We have observed a case in which a clinical and hematologic picture of granulocytopenia with associated purpura developed within ten days after the completion of a course of nitrogen mustard therapy. The blood smears did not reveal any neutrophils and only a few thrombocytes were seen. In 2 other cases in which the usual calculated dose of nitrogen mustard was administered, severe thrombopenia, purpura and intrapulmonary bleeding developed in the third week after therapy. In 1 of these cases, clinical evidence of intracerebral bleeding also occurred. While the nature of the diseases for which nitrogen mustard therapy was instituted in these cases was such that the drug could not be unequivocally incriminated as the cause of these complications, the relationship, in time, of its administration to the clinical deterioration was suggestive. It appears that the use of nitrogen mustard carries a risk; therefore, in employing it, the physician should weigh the seriousness of the existing disease against that of the possible complications arising from the therapy and should recognize that the month following the completion of therapy is a potentially dangerous period during which severe neutropenia or thrombopenia may occur.

SUMMARY AND CONCLUSIONS

This paper includes an analysis of the results of nitrogen mustard therapy, or combined nitrogen mustard and irradiation therapy, in 18 cases of advanced Hodgkin's disease. Our experience indicates that, in cases in which the disease has become more or less refractory to roentgen therapy, nitrogen mustard has very limited usefulness as an agent which may produce transient subjective improvement without necessarily altering or significantly delaying the progressive course of the disease. It is apparent that existing lesions may progress or that new lesions may develop within a few weeks to a few months after institution of nitrogen mustard therapy. Very satisfactory regression of some of the lesions in a given case may occur as a result of this therapy, while progression of other lesions is taking place simultaneously. Lesions which involved nonlymphoid organs responded poorly or not at all to this therapy. Our results suggest that the cases in which there was the least tendency to progression during the period of observation were those in which the disease had existed for the longest time prior to the institution of nitrogen mustard therapy.

The results of nitrogen mustard therapy in 10 cases of lymphosarcoma also have been considered. While the over-all results were not encouraging, in our experience they were unpredictable. While 7 of 10 patients either died within six months or were unimproved after this therapy, it appears that some patients may respond very well to it. From our experience, we cannot draw any conclusions as to the correlation between the histologic pattern in a given case of lymphosarcoma and the responsiveness to therapy.

In our hands, nitrogen mustard has been a valuable adjunct to roentgen rays in the treatment of mycosis fungoides, although its usefulness varies in different cases. A very satisfactory result was obtained with nitrogen mustard therapy in a case of cutaneous lymphoblastoma after irradiation had failed to stop progression of the disease.[5] Initial results in the treatment of polycythemia vera with nitrogen mustard have been sufficiently encouraging to warrant further investigation of its usefulness in this disease. Malignant neoplasms have responded very poorly or not at all to nitrogen mustard therapy, in our experience.

Nitrogen mustard is potentially a dangerous drug and is capable of severely damaging the hemopoietic tissues when used in the presently accepted therapeutic doses. Finally, we believe that a true evaluation of the efficacy and reliability of nitrogen mustard in cases of lymphoblastoma can be determined only by employing this agent alone in a series of hitherto untreated patients and comparing the results with those obtained in treating similar patients with irradiation and with a combination of irradiation and nitrogen mustard.

Clinical Notes, Suggestions and New Instruments

DEATH DUE TO PHENOL CONTAINED IN FOILLE®

Report of a Case

THOMAS D. CRONIN, M.D.
and
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Houston, Texas

A 10 year old white boy was accidentally burned early on a Saturday evening when kerosene was thrown on a fire. He sustained first and second degree burns of the face; anterior part of the neck, chest and abdomen as far as the umbilicus; arms, and a 12 by 9 cm. area on the right thigh, or approximately 25 to 30 per cent of the body surface. The results of the rest of the physical examination were essentially negative.

He was taken immediately to the hospital emergency room and given 500 cc. of plasma and morphine sulfate, ⅙ grain (11 mg.).

The burned areas were clean, so that superficial debridement was carried out after he had responded from the initial shock. A pressure dressing was applied, which was saturated with foille® (a preparation containing phenol, Carbisulphoil Company),[1] and he was admitted to the hospital at 10 p. m. Saturday night.

In the original application, about 2,500 cc. of foille® emulsion was applied, and the nurses were instructed to apply it as often as necessary to keep the dressing moist. They were rather diligent in carrying out this order, so that during the two and a half days the patient lived after he had been burned, more than 7,500 cc. of the preparation was used.

His initial blood test showed 5,680,000 red blood cells, 16.0 Gm. (104 per cent) of hemoglobin and 20,000 white blood cells, with 9 per cent lymphocytes and 91 per cent neutrophils.

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[5] Since preparing this report, we have employed nitrogen mustard in treating another patient with very widespread cutaneous lymphoblastoma, who had had no previous roentgen therapy. Very remarkable clinical and histologic improvement was apparent three months after the completion of the therapy.

[1] The contents are given in detail later in the paper.

He was given penicillin, 30,000 units every three hours, and during the next twenty-four hours he received a total of 1,500 cc. of plasma, 2,500 cc. of dextrose in isotonic sodium chloride solution and more than 600 cc. of water orally, for a total fluid intake of 4,600 cc. The urinary output was about 500 cc. He vomited a small amount of greenish fluid five times and a large amount of clear fluid twice. During the rest of the night, he required nothing for pain, was "mentally clear" and slept well, awaking occasionally for water. The respirations remained about 20 and pulse rate 104 to 116.

By Sunday noon his temperature had risen from 102 to 104 F. rectally after a slight chill. He required codeine, ½ grain (33 mg.), at 10 a. m., pantopon® (an opium preparation containing the total opium alkaloids in the form of soluble hydrochlorides), ⅙ grain (11 mg.), at 1 p. m., and pentobarbital sodium at 1:30 p. m., as he had been "crying and screaming." For the next six hours, he was quiet and slept at intervals, but by 10 p. m., Sunday night, he was very restless and crying again. His temperature had dropped to 100.8 F. and his pulse rate to 100. A hemoglobin determination at this time was reported as 13.0 Gm., or 84 per cent.

During the rest of the night, which was the beginning of his second hospital day, he required pentobarbital sodium, 1 grain (65 mg.), twice and pantopon,® ⅙ grain (11 mg.), once. By 4 a. m. he was complaining of severe intermittent abdominal pain and expelled flatus frequently. In spite of all this, the nurses said that he had a fair night and roused little when given his 6 a. m. dose of penicillin.

On Monday morning it was noticed that his abdomen was distended, but it was difficult to make a satisfactory examination because of the burn. The distention was treated with enemas and a rectal tube inserted, with returns of a dark brown liquid and considerable flatus.

His fluid intake during Sunday night and Monday, his second hospital day, was 500 cc. of blood, 1,750 cc. of dextrose, 750 cc. of plasma and over 170 cc. of water, for a twenty-four hour fluid intake of 3,170 cc. This twenty-four hour output was unknown. At 10:30 p. m. Sunday, beginning his second day, it was first noticed that his urine was very dark. After this, he passed three similar specimens, one of which amounted to 240 cc. The final eight hours of this day he put out no urine. He had lost some fluid through the rectal tube and Wangensteen suction apparatus, the latter having been put in place early Monday evening. Shortly after the suction was begun, he was given a sodium bicarbonate enema, with highly colored returns, containing no fecal material.

During this second twenty-four hour period he had repeated blood cell counts. The hemoglobin at 7:30 a. m. was 14.5 Gm. (94 per cent); in the early evening it was 12.5 Gm. (81 per cent), and at 7 p. m. it was 13.0 Gm. (84 per cent). The hematocrit reading in the afternoon was 37 per cent. More complete studies were not done, because of the technical difficulties involved in getting the blood.

We first saw him in consultation on Monday at noon. At this time, he had a cannula tied in the left saphenous vein, the abdomen was distended and he was in a stuporous condition. It was believed wise not to disturb the dressings, but concentrate on giving him the blood and plasma he was then receiving. His lethargy was partially attributed to the pantopon® which he had received forty-five minutes before.

We saw him four hours later, at which time his temperature had risen to 101 F. and he was still stuporous, seemingly out of proportion to the condition to be expected from the burns alone. All treatment with narcotics had been stopped after our first visit. Shortly before this, he became rather cyanotic and nasal oxygen therapy was begun. It was now that it seemed to us that part of the odor of the foille® was that characteristic of phenol.

A pharmacist was called, who stated that foille® contained 2 per cent or more phenol. The dressings were removed and replaced with a petrolatum gauze pressure dressing. It was noticed that all the burned surfaces had a white parchment appearance, with little or no serous oozing from the surface. This dressing change was accomplished without anesthesia and with no resistance from the patient.

Late Monday night and early Tuesday morning (which was the beginning of his third day) his respirations became noisy and labored, with gurgling sounds in the trachea. Suction of the mucus was required to maintain the airway. There were also many moist musical rales. The mucus increased and later became foamy and pink tinged.

During the patient's final seventeen hours his output was 1,100 cc. of dark urine. He lost 240 cc. of a dark brown liquid through the Wangensteen tube. His intake, meanwhile, amounted to 500 cc. of blood, 1,500 cc. of dextrose in isotonic sodium chloride solution and over 75 cc. of water, for a total fluid intake of 2,075 cc.

By early Tuesday morning he was comatose, with grunting irregular respirations; the temperature had increased to 103.4 F. and the pulse rate to 134. His condition remained about the same until about 2 p. m. Tuesday, when the respirations became rather shallow and rapid and his pulse weak. He died at 3:15 p. m.

Postmortem Examination.—Postmortem examination revealed a superficial burn over the areas previously described, with decided edema of the face and neck. The pleural, pericardial and peritoneal cavities were smooth and glistening, with some straw-colored fluid in the pericardial cavity. The lungs showed spotty, firm, dark brown and reddish areas, especially in the lower lobes; microscopic examination showed hypostatic pneumonia. The trachea and bronchi contained mucus, and the mucosal lining was hemorrhagic.

The spleen was grossly normal, but microscopically showed acute congestion. The adrenal glands, heart and aorta were essentially normal. The liver grossly was light brown, firm in consistency and about normal size. On sectioning, the cut surfaces were light brown, but the liver markings were not as clear as normal. Microscopically, it showed a midzonal necrosis, involving almost all the liver lobules with complete destruction of the involved cells.

The kidneys were normal in size. The capsules stripped with ease, revealing pinkish red surfaces. On sectioning, the demarcation line between cortex and medulla was visible. Microscopically, the glomeruli were normal, but the epithelial cells lining the tubules showed decided parenchymatous degeneration with loss of the cellular configuration.

The digestive tract showed acute congestion.

Chemical studies were made by Henry O. Nicholas, Ph.D., Associate Professor of Chemistry, Rice Institute. He reported the following observations: a total volume of urine of 220 cc., a trace of free volatile phenols and 22 mg. of conjugated phenols per hundred cubic centimeters of urine. The total volume of gastric juice was 18 cc., with a trace of free volatile phenols and 18 mg. of conjugated phenols per hundred cubic centimeters of gastric juice. The results of tests of mixed tissues (liver, stomach wall, kidney, qualitative tests only) were strongly positive for both free and volatile phenol. In the analysis of foille® for phenol, one method showed the presence of 1.4 per cent phenol by weight and another method showed the presence of 1.8 per cent phenol by weight.

In reviewing this case, it would seem that the pathologic process was probably already fixed by the time we saw him, as 7,500 cc. of the foille® (105 to 147 Gm. of phenol, depending on whether 1.4 per cent, the lowest figure of Nicholas, or 1.97 per cent, the Carbisulphoil Company figure, is used) had already been applied to the dressings.

The damage to the kidneys was apparent within twenty-four hours of the application of the foille,® as a urine specimen was reported as having a dark color as early as 10:30 p. m. Sunday night. The patient passed three other dark specimens during the following sixteen hours, after which he put out no urine for nine and a half hours. After this period of anuria, the output was greater than it had ever been, almost equaling the intake for this period, when previously the output had always been small compared with the intake.

The initial study of the blood showed hemoconcentration, but later studies did not, as would have been expected if the fatal outcome was due to the burn alone. In our experience, the stuporous condition noted in this patient was out of proportion to the extent of the burn.

OTHER REPORTS

Johnstone[2] reported a case of a 22 year old man who accidentally spilled a bottle of carbolic acid, saturating the "right leg, right side of the abdomen and the chest." Fellow employees immediately removed his shirt and threw water over the upper part of his body. He then walked across the street to a physician's office without difficulty, but collapsed and died within fifteen minutes of his arrival. Autopsy revealed, in addition to the local first and second degree burns, "hyperemia and edema of the lower lobes of both lungs, and marked hyperemia and edema of both kidneys, pancreas and spleen. There was no change in the heart or liver. Analysis of portions of the pancreas, spleen and kidneys was positive for carbolic acid, and the chemist reported the quantity found was increased five times over that usually found in these tissues at autopsy."

Thienes and Haley[3] said, regarding the toxic dose, ". . . 5 grs. of phenol or creosol or 1 cc. creosote may cause dangerous symptoms. Three grams of any one may be fatal although recovery after 150 cc. of creosol has occurred." Gonzales, Vance and Helpen[4] stated, ". . . the fatal dose of phenol is about one-half ounce when it is taken by mouth. . . . When used in wounds or body cavities, a small dose can be quite dangerous. The average duration of the clinical course in a fatal case is from two to twelve hours, but may be shorter or longer."

The symptoms of poisoning are "dizziness, delirium, sometimes convulsions, collapse and loss of consciousness, fall of temperature (or sometimes fever), labored breathing and oliguria with dark urine."[3] The dark urine is an early symptom of mild poisoning. Cases of delayed death show symptoms of renal necrosis—oliguria or anuria, albuminuria, hematuria, edema and retention of waste products in the blood. The odor of phenol is noticeable on the breath.

Phenol is detoxified by the liver after absorption and is excreted by the kidneys as ethereal sulfates, hydroquinol or pyrocatechol, glucuronates and free phenol. A trace is excreted by the lungs. It produces cerebral edema and cardiac dilatation. If life persists for one-half hour or more, there is glomerular and tubular degeneration of the kidneys with central necrosis of the liver.

The diagnosis is made by the histologic picture of the liver and kidneys together with the chemical analyses. "Phenols may be demonstrated in suspected bottles, in stomach washings or in urine. At autopsy the odor may be detected, even before opening the stomach."[3]

The cause of early death is due to shock, respiratory failure or cardiac collapse. Delayed death is of renal or hepatic origin.

In 1941, the Council on Pharmacy and Chemistry[5] reported on foille® at the request of the Carbisulphoil Company of Dallas, Texas. The product was submitted as a "new protective antiseptic and analgesic dressing in the local treatment of recent and infected burns, traumatic and infected wounds and indolent ulcers." It was stated to consist of the following ingredients:

Alcohol	1.20
Phenol	2.36
Benzocaine [ethyl aminobenzoate]	1.26
Calcium soap	0.36
Calcium iodide	0.24
Potassium iodide	0.12
Oxyquinoline base	0.18
Calcium thiosulfate	0.03
Calcium sulfite	0.07
Calcium sulfate	0.13
Sulfur (free)	0.17
Water	2.85
Corn oil (fixed)	90.33
Glycerine	Present

The manufacturer further claimed: "The benzocaine plus the phenol is said to effect an immediate and pronounced anesthesia which mitigates shock and pain to provide a distinctly favorable factor in the initial stage of a serious burn. The action of the soap augmented by phenol on prolonged contact is claimed to coagulate the serum exudation, excluding air and forming a soft shield."

"In support of claims for the product, the manufacturer submitted . . . additional laboratory statements to show that poisoning from the phenol contained in the product will not occur because it is not appreciably absorbed through the skin because of its affinity for the water-in-corn oil vehicle and that a mild antiseptic action occurs with prolonged application."

In summarizing its report, the Council stated, "The evidence submitted by the firm to support the claims for Foille is largely testimonial, poorly, if at all, controlled and consists of considerable reduplication of material. The case reports submitted are further inadequate from the standpoint of blood studies by which to evaluate the systemic condition of the patients." It went on, "Aside from the question of systemic absorption, the possible danger of local injury to tissues by the action of 2.35 per cent phenol should be considered." The Council voted that foille® be "not accepted for inclusion in New and Nonofficial Remedies because it is marketed under an uninformative proprietary name without satisfactory evidence to establish the therapeutic rationale for its complex formula and the claims made for it."

A brochure furnished by the Carbisulphoil Company states, "In the local treatment of major or minor burns and other wounds, Foille may be used not only for first aid but in the further management of the patient. . . . Dressings saturated with Foille emulsion should be applied directly to the wound and the dressing kept moist with Foille. . . . In some cases, depending upon the clinical picture—temperature, pulse and respiration—it may be appropriate to continue with the original dressings for a longer period of time by frequently saturating them with Foille in order to keep the area moist, soft and pliable. Such treatment may be continued either with or without changing the dressings until healing is complete or until conditions are satisfactory for grafting." The formula listed in the brochure was essentially the same as that given previously, except that the total phenol was stated to be less than 1.97 per cent.

COMMENT

In foregoing quotation, it should be noted that the free use of foille® is advised in both major and minor burns and for unlimited periods. Nowhere in the brochure is there any warning as to the possible danger of absorption of phenol.

We believe that the use of phenol in this mixture is dangerous and, furthermore, is irrational, as burned patients are soon fairly comfortable after the application of bland agents, such as petrolatum. Certainly there is no justification for the continued use of phenol on a burned patient.

We have found no reports of fatalities from the use of foille,® but a sober consideration of the events in this case would indicate that there have probably been other deaths due to the contained phenol. It is probable that in these cases the death has been attributed to the burn itself.

We feel that foille® as now constituted, with approximately 1.97 per cent phenol, is a dangerous and irrational preparation which should be withdrawn from the market immediately.

SUMMARY

A case is presented of a 10 year old boy with 25 to 30 per cent of the body surface burned. The clinical course and chemical and postmortem examinations revealed phenol poisoning due to the absorption of phenol contained in foille® (Carbisulphoil Company), the substance applied as the local dressing.

The toxicologic aspect of phenol poisoning is presented. The product foille® was not acceptable to the Council on Pharmacy and Chemistry Aug. 2, 1941. The use of phenol (1.97 per cent) in foille® should be discontinued, as fatal intoxication may result.

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[2] Johnstone, R. T.: Occupational Medicine and Industrial Hygiene, St. Louis, C. V. Mosby Company, 1948, p. 216.

[3] Thienes, C. H., and Haley, T. J.: Clinical Toxicology, Philadelphia, Lea & Febiger 1948, p. 31 and 163.

[4] Gonzales, T. A.; Vance, M., and Helpen, M.: Legal Medicine and Toxicology, New York, D. Appleton-Century Company, Inc., 1947 and 1940, p. 485-488.

[5] Foille (Carbisulphoil Company) not acceptable for N. N. R., report of Council on Pharmacy and Chemistry, J. A. M. A. **117**: 363-365 (Aug. 2) 1941.

Council on Pharmacy and Chemistry

REPORT TO THE COUNCIL

The Council has authorized publication of the following report.
Austin Smith, M.D., *Secretary.*

A STATUS REPORT ON ANALEPTICS

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Although knowledge about the nature of the changes which analeptics[1] produce in cells is almost totally lacking, the drugs now in use as analeptics fall into four convenient categories:

1. Those which have a primary stimulant action on the nervous system and the value of which depends on that action. The representatives of this group are picrotoxin, metrazol® (pentamethylenetetrazol), nikethamide (coramine®), strychnine, caffeine and atropine; the latter three may be regarded as obsolescent or (particularly atropine) obsolete for analeptic purposes.

2. Drugs the analeptic effects of which are due to reflexes from one source or another. The most powerful of such reflexes are those from the carotid and aortic bodies. Alpha lobeline owes its therapeutic action to the stimulation of these structures. Cyanides, sulfides and nicotine are capable of similar actions but are not used because of their extremely toxic properties and connotations. Irritants of the nose, mouth and stomach (smelling salts, aromatic spirits of ammonia, whiskey, brandy) belong in this category, as do subcutaneous injections of camphor, alcohol or ether and any type of chemical or physical intervention capable of arousing sensory impulses which bombard the central nervous system (e. g. slapping, walking).

3. Drugs which stimulate both the central nervous and cardiovascular systems and which, in sufficient dosage, produce not only convulsions but also hypertension and tachycardia. Their analeptic effects presumably depend not only on the direct stimulation of nerve cells (as with group 1), but also an increase in the blood supply to the brain. This group includes practically all of the aromatic sympathomimetic amines, but for this purpose those in which the central nervous stimulant action is relatively great and the sympathomimetic effect relatively small are preferred to those in which the opposite relationship exists. Thus amphetamine (benzedrine®), d-amphetamine (dexedrine®) and desoxyephedrine (methedrine®) are preferable analeptics to epinephrine, paredrine® (*p*-hydroxy-*a* methyl-phenyl-ethylamine) or phenylephrine hydrochloride (neo-synephrine hydrochloride®), with ephedrine in an intermediate position. Aliphatic pressor amines, 2-aminoheptane sulfate (tuamine sulfate®) and methylamino-iso-octene (octin hydrochloride®); imidazole pressor derivatives, like naphazoline hydrochloride (privine hydrochloride®), and special agents, like posterior pituitary and ergot derivatives, do not stimulate the central nervous system sufficiently to be useful in this connection.

4. Substances which exert a specific stimulant effect on nerve tissue by entering directly into the biochemical reactions on which the excitability of this tissue depends. These include intermediate products of carbohydrate metabolism, such as pyruvate, succinate and fumarate as well as the components of the vitamin B complex.

Analeptics have not proved to be infallible when used in the treatment of central nervous system depressions. This may mean that the drugs now available for this purpose are deficient in important respects and that intensive search is indicated for other agents which would produce superior clinical results, or it may mean that the available analeptics are capable of doing practically everything that can reasonably be expected of drugs of this type. If the second of these is true, further improvement in the management of the unconscious patient would depend on other measures based on a better knowledge of the underlying derangements.

In an attempt to assess the present status of analeptics a most important consideration becomes an understanding of what such drugs may be expected to accomplish. This amounts to an inquiry into the nature of the changes which underlie unconsciousness or coma, as encountered clinically, and the manner in which analeptics affect these abnormalities. These questions will be considered.

THE CAUSES OF CLINICAL DEPRESSIONS OF THE CENTRAL NERVOUS SYSTEM

The common underlying mechanism in all severe depressions of the central nervous system appears to be an interference with the complex metabolism of nerve tissue. The integrity of this metabolic process depends on at least two conditions. The first of these is the homeostasis of the cellular environment, a term which Cannon used to characterize the maintenance of a constant and optimal concentration of available oxygen and glucose, of carbon dioxide and hydrogen ion and a host of other substances. This homeostasis is achieved only by a well integrated functioning of the cardiovascular, respiratory, assimilative and excretory mechanisms of the organism. In addition to an optimum cellular environment, there must be present, for a normally functioning central nervous system, certain intracellular mechanisms for the proper conversion of energy. These two conditions may serve as a basis for a classification of the relatively acute depressions with which this discussion is concerned. Such a classification is important and even urgent if rational therapy is to be achieved.

CLASSIFICATION OF ACUTE CENTRAL NERVOUS SYSTEM DEPRESSION

A. Failure of homeostasis
  1. Changes in composition of arterial blood
    (*a*) Lack of available oxygen and/or accumulation of carbon dioxide (respiratory disease, depression or cessation)
    (*b*) Lack of available nutrient material (glucose primarily)
  2. Failure in cerebral circulation
    (*a*) General circulatory derangements (heart failure, asystole, decreased blood volume, loss of vasomotor tone—all characterized by a low systemic blood pressure)
    (*b*) Local circulatory disturbances (increased intracranial pressure, cerebral arterial spasm, occlusion or rupture)

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[1] An analeptic may be defined as a drug capable of stimulating the normal central nervous system and which is used for the purpose of overcoming a depression of that system.

B. Failure in intracellular metabolism
  1. Lack or destruction of certain intracellular enzyme systems (deficiency diseases, "irreversible" stage of other depressions)
  2. Action of noxious substances
    (*a*) Endogenous—acidosis, ketosis, uremia
    (*b*) Exogenous—narcotic or other drugs

Most clinical depressions involve more than one of the causes listed, either from the start or as subsequent complications. From the point of view of the present discussion, there is little doubt that depressions caused by narcotic drugs are the most amenable to analeptic drugs. Other depressions are less likely to be helped and may indeed be intensified by analeptic therapy, particularly if such therapy is followed by convulsions.

THE MECHANISM OF ANALEPTIC ACTION

Since analeptics are most effective in the presence of a narcotic depression, it is probable that the actions of the two types of drugs are intimately related. The more probable relationships are: (1) direct chemical inactivation or neutralization of the narcotic by the analeptic, (2) diminution in the effective concentration of the narcotic agent within the nerve cell and (3) physiologic antagonism, i. e., increased excitability of nerve cells overshadowing a continuing depressant effect.

There is no evidence that would indicate a direct inactivation of a depressant drug by an analeptic agent, either *in vitro* or *in vivo*. In view of the diverse chemical and physical properties of narcotics and analeptics, it would indeed be surprising if a common reaction were demonstrated.

A rational and simple explanation of the mechanism of action of analeptics would be a diminution in the effective concentration of the depressant in nerve cells brought about by displacement of the narcotic from combination with neuronal protoplasm or by promotion of its excretion or detoxification. The displacement theory is supported by the evidence that picrotoxin stimulates breathing only when respiration is depressed, and then as part of a general awakening from narcosis. These phenomena are, however, peculiar only to certain depressants (phenobarbital with morphine, chlorobutanol, paraldehyde and tribromoethanol solution [solution avertin with amylene hydrate®]) and to picrotoxin as the stimulant; they have not been seen when metrazol, caffeine or nikethamide was used to counteract these same narcotics or when picrotoxin was used against depressions caused by urethane or ethyl alcohol, and, finally, they apparently are seen only in light or moderate depressions but not in deep narcosis.

If the displacement theory is correct, the concentration of narcotic in the cerebral venous blood should rise and that in nervous tissue should fall when the analeptic effect is at its height. There are as yet no data concerning this phase of the problem. Concentrations of paraldehyde, avertin® and barbiturate in *systemic* venous blood have not been significantly altered by the administration of analeptics, but this would not preclude a concomitant mobilization of the narcotic from the brain and deposition in other tissue. The methods for quantitatively estimating the barbiturate content of tissues and blood have been too inaccurate to warrant confidence in the observations, but the recently described spectrophotometric procedure may make possible a definitive answer to this question.

According to the published evidence, physiologic antagonism is the most probable explanation for the reciprocal relationship between analeptics and depressants. In favorable circumstances the antagonism may be so nearly perfect that a mixture of a narcotic and an analeptic can be injected intravenously with surprisingly little effect, although the amount of each agent is such that coma or convulsions would occur if it were given alone. Similarly, a dose of barbiturate which would otherwise be fatal will cause only a depression if given with an analeptic; respiratory failure produced by intracisternal injection of a barbiturate can be counteracted by a similar prompt injection of picrotoxin, and the stupor produced by certain barbiturates may often be instantly terminated by intravenous injection of a suitable analeptic in laboratory animals or in human subjects.

The explanation of this antagonism depends on knowledge of the cause of the narcotic depression, which is still obscure. The older physicochemical conceptions of narcosis, such as the lipid, surface tension and adsorption theories, have ceased to attract attention or stimulate fundamental research, largely because recent discoveries of the complex biochemical relations existing in even the simplest cells have rendered unlikely a simple all-inclusive explanation for all of the observed phenomena of narcosis. One of the recent trends has been a revival of the idea formulated originally by Verworn, viz., the fundamental feature in the narcotic process is interference with oxidative reactions on which cell functions depend. Quastel and his associates were able to show a consistent depression of the uptake of oxygen by nerve tissue in vitro in the presence of concentrations of narcotics within a range compatible with life. In the monkey's brain *in vivo* oxygen consumption was found to be depressed by narcotics and elevated by analeptics, the changes in oxygen uptake showing a close parallelism to the concomitant changes in functional activity. A limited amount of recent evidence indicates that the same parallelism exists in human beings in different physiologic and pathologic states. There are data to indicate that narcotics interfere with the dehydrogenating enzymes rather than those directly concerned with oxygen; this is shown by the fact that under the influence of narcotics cytochrome C can take up oxygen in a normal manner but cannot release it again.

The opposing action of analeptics has not been studied from the point of view of anything but over-all activity or oxygen uptake. Conceivably analeptics might: (1) specifically displace narcotics from their combination with cell dehydrogenases, (2) serve as coenzymes or specific substrates which would permit normal or hypernormal cell oxidations in spite of the narcotic, (3) combine with neuronal protoplasm in some manner unrelated to the narcotic but capable of overpowering its effects or (4) set up nerve impulses sufficiently strong to produce the latter type of result. Choice among these is a matter of individual preference until the underlying mechanisms are better understood.

An interesting variation of this conception of physiologic antagonism has to do with the effects of narcotics and analeptics on synaptic transmission. Dripps and Larrabee have observed that barbiturates will depress this process if used in greater than anesthetic doses and that metrazol® could counteract the depression and cause facilitation. This cannot be made the basis for a general explanation of analeptic action, however, because picrotoxin does not affect synaptic transmission and nikethamide only depresses it.

From the foregoing discussion, it becomes apparent that the mechanism of action of analeptics has not been clearly elucidated but that current evidence favors the theory of physiologic antagonism. It should be understood that other possible mechanisms of action are excluded only because of the lack of positive evidence. Final clarification of the mechanism of action of analeptics must await some or all of the following: (*a*) development of an acceptable method for quantitative determination of a barbiturate in body fluids, (*b*) the planning and execution of carefully controlled experiments designed to measure the normal deposition and removal of narcotics in tissue and the influence of analeptics on such deposition and removal and (*c*) further information on the mechanism of narcotic depression.

EVALUATION OF INDIVIDUAL ANALEPTIC AGENTS

In evaluating individual analeptics, the following facts must be recognized: (*a*) Patients have recovered from more than usually fatal doses of barbiturate without the benefit of an analeptic; (*b*) there are definite hazards in the use of analeptics for the treatment of depressant states, and (*c*) no analeptic can be depended on to cause the recovery of a patient deeply depressed from a usually fatal dose of a barbiturate.

Much of the difficulty in obtaining significant data for the evaluation of analeptics is due to the wide variability in the response of human beings or animals to the same dose of a barbiturate. The minimum lethal dose of a given barbiturate may vary widely in different groups of the same species of animals or may change in the same group with the season of the year. In patients additional factors play a part in determining this variability. These include: the degree of absorption of a given dose of drug, the presence of coexistent disease, the age and physical status of the patient and the period between ingestion of the drug and onset of treatment. For the evaluation of the effectiveness of analeptics, these factors and others to be elucidated in this report must be taken into consideration. To one examining the literature critically, it becomes apparent that, in spite of the large number of reports, those containing complete or incontrovertible data are relatively few. The outstanding deficiencies of many of the existing reports are: a lack of adequate controls, the fact that conclusions have been drawn on very small numbers of experiments, the inability of one group to duplicate the observations of another and the use of experimental methods which are difficult of interpretation. Another distinct impression is that many investigators have attempted to draw conclusions on the basis of inadequate dosages of the analeptics. The following paragraphs summarize the data that are generally accepted, except for the reservations mentioned, for the use of individual analeptics.

Picrotoxin.—In 1936 and again in 1939, the Council on Pharmacy and Chemistry published reports on the use of picrotoxin as an analeptic agent. These reports cautioned that picrotoxin had not been fully evaluated and should be used only by those fully aware of its potentialities. The laboratory data available today suggest that picrotoxin is the most potent analeptic agent for use in treating barbiturate depression, but the published clinical data do not offer completely convincing proof that this drug is the drug of choice for analeptic use against all narcotics.

The administration of picrotoxin to normal human beings or animals produces practically no effect until the dose is large enough to produce convulsions. Subconvulsive doses do not affect circulation or respiration or elicit other signs of significant central nervous system stimulation. However, if picrotoxin is given to an animal in which the respiration and circulation have first been depressed by a barbiturate, an increased minute volume of respiration and a rise in blood pressure may be noted. These are the result of direct stimulation of the respiratory and vasomotor centers.

This apparent antagonism between picrotoxin and barbituric acid derivatives has been substantiated by experiments such as the following: 1. Linegar and his co-workers administered intravenously alternate doses of barbital sodium and picrotoxin to rabbits and were able in this manner safely to expose their animals to total doses of the barbiturates which were four times the estimated lethal dose. 2. Picrotoxin and narcotic doses of pentobarbital injected simultaneously into a vein in rabbits caused depression for about 10 minutes only. Coriamyrtin, which is chemically and physiologically similar to picrotoxin, when given simultaneously with the same barbiturate actually prevented the rabbit from being depressed at all. The explanation of the difference in action between these two analeptics lies in the latent time of action of picrotoxin, which may be as long as 10 to 30 minutes, a trait distinguishing it from all other analeptics and complicating its proper clinical administration. 3. Another antagonistic effect of narcotics and depressants was shown by the experiments of Maloney and Tatum. Two dogs were simultaneously given lethal doses of amytal® (5-isoamyl-5-ethylbarbituric acid). One of these dogs was then treated with picrotoxin and the other used as a control. When the control dog died the treated dog was killed, and both were examined at necropsy. The lungs of the control dog revealed a complete obliteration of all alveoli, while the treated dog showed only patchy areas of congestion in the lungs. The difference presumably was due to differences in respiratory and circulatory activity, but a greater number of experiments in this series would have been comforting.

Picrotoxin can cause harm to the patient in several ways. First, it may produce convulsions, which have commonly been reported during the picrotoxin therapy of narcosis. The most important reason for these convulsions is the latent period of 10 to 30 minutes between intravenous injection and onset of the full effect of picrotoxin. If the clinician administering the drug does not wait this full interval before giving subsequent doses, convulsions may occur. Usually there are some premonitory signs of convulsions, but there are reports of convulsions appearing without any warning 30 minutes after picrotoxin was administered. In the event of deep depression it is unwise to attempt a complete arousal, since convulsions may appear before awakening. Should convulsions appear, they will certainly lead to a secondary depression and clinically may have led to the loss of life. In profound depressions, picrotoxin should be administered only to the point where reflexes have returned and blood pressure and respiration are maintained.

The second possibility of harm by pictrotoxin is that it may lead to a depression per se. However, most of the laboratory and clinical reports do not substantiate this conclusion unless the analeptic has been given to the point of convulsions following which a secondary depression has often appeared. One report has appeared in which 2,134 mg. of picrotoxin was used, but a convulsion appeared on the eighth day of treatment which resulted in a secondary depression from which the patient never recovered. Large quantities of picrotoxin have been given to patients with barbiturate poisoning with subsequent recovery without secondary depression (viz., 1,745 and 1,020 mg.).

The duration of action of a single dose of picrotoxin is longer than that of metrazol® or nikethamide, so that in clinical usage the interval between doses should be longest with this drug. Following intravenous administration to dogs and rabbits, 5 mg. per kilogram of body weight leaves the blood so rapidly that in 20 minutes the blood concentration has leveled off and in 2 hours it has become negligible. Apparently all tissues take up the drug, but the exact site of detoxification is unknown. It is known to be detoxified at the rate of 1.5 convulsive doses in 100 minutes in rabbits.

Picrotoxin apparently is not the drug of choice in all depressions. Its relatively delayed action and the consequent difficulty of dose regulation preclude its use in any but deep depressions caused by the barbiturates. It is said to be contraindicated in morphine poisoning, but most of the data have been obtained from animals. Since there are wide species differences in the actions of morphine, data obtained in animal experiments have only limited value in relation to human beings. Picrotoxin has been advocated in poisoning from sodium bromide, but in depressions from other drugs other analeptics have more commonly been recommended.

Metrazol.®—Metrazol® (pentamethylenetetrazol) has generally been found to be a valuable analeptic agent, but according to results of animal experiments it is inferior to picrotoxin in potency. Probably the most important difference between the two drugs is that metrazol® elicits its maximum effect immediately following intravenous injection; the drug is therefore of value in treating the respiratory depression that may follow the intravenous injection of the short-acting or ultra-short-acting barbiturates. Metrazol,® like picrotoxin, has little effect on the respiratory center in the unanesthetized animal, but the stimulating properties on the depressed center have been demonstrated conclusively. There is apparently no remarkable effect on the vasomotor center except when very large doses are injected rapidly. When the drug is injected intravenously there is usually a transient hypotension, probably due to a peripheral vasodilator effect. Richards and Menaker expressed the opinion that metrazol® is more effective on the higher centers than picrotoxin and for this reason have suggested the drug as an adjunct to picrotoxin in profound barbiturate poisoning after the latter drug has maintained the reflexes, blood pressure and respirations without causing arousal. Patients awakened from thiopental sodium anesthesia with intravenously administered metrazol® frequently retch, vomit and become restless, particularly if a large dose of metrazol® has been injected rapidly. One wonders whether patients so aroused from anesthesia are any less a nursing problem than those allowed to "sleep out" their anesthesia.

Although metrazol® acts rapidly, its duration of action is brief and the drug may have to be injected at frequent intervals. There is quick equal distribution in all of the tissues with rapid detoxification, presumably in the liver. Werner and Tatum found that in the rabbit 1.66 convulsant doses were detoxified in 100 minutes. The rapidity with which a patient, awakened from thiopental sodium anesthesia with a single intravenous dose of metrazol,® returns to his former state of coma causes one to suspect that the detoxification rate of rabbits may be slower than in human beings.

Metrazol® has not been uniformly effective against large doses of the longer-acting barbiturates, although some case reports of successful results have appeared. The failure of the drug as an analeptic is too often associated with the use of inadequate initial doses and neglect to repeat as often as needed.

Nikethamide.—All available evidence indicates that nikethamide is definitely inferior to pictrotoxin or metrazol® as an analeptic agent in the treatment of barbiturate and most other depressant states. We are not aware of any comparative study of these three drugs that has claimed superiority for nikethamide. The reports favoring its use are for the most part uncontrolled clinical studies. From this it follows that there is no justification for statements such as "the most useful and reliable drug up to date, particularly where barbiturates are concerned" and "traditional value as an antidote for barbiturate."

There is no indication of a remarkable cerebral stimulant action of nikethamide in a barbitalized animal, and there are numerous reports of a secondary depression without convulsions following the use of the drug. In a number of conrolled experiments in which nikethamide was used to treat a central depression, the incidence of deaths was higher in the treated group than in the controlled group.

Various other unwarranted claims have been made for this drug: 1. It consistently leads to an elevation of blood pressure, a claim apparently based on experiments with rabbits but apparently not true in some other commonly used laboratory animals. Gunther and his associates and Schube were unable to demonstrate more than occasional elevations in blood pressure in normal or in hypotensive patients. 2. The drug has been considered a cardiac tonic and a coronary artery dilator, but there is recent evidence that this is not true. Cardiac efficiency has been shown to decrease with nikethamide, and coronary dilatation apparently occurs only with the use of toxic doses. 3. Nikethamide is frequently considered nontoxic, but, with the ever increasing dosage advocated, the convulsive dose determined for animals (50 mg. per kilogram of body weight) is being approached and exceeded in human beings. The administration of divided doses is not without danger, since the rate of detoxification is slower than with picrotoxin or metrazol® (0.5 convulsive dose detoxified in 100 minutes). This agrees with the observations of Eckenhoff and Hafkenschiel, who found that 60 to 80 mg. per kilogram caused convulsions in 1 of 4 normal dogs, but when the same or decreased dose was repeated in 40 to 90 minutes, 3 of the 4 dogs had convulsions and died in one to two hours. Chakravarti found that if the amount of nikethamide needed to awaken mice was compared with the amount that was lethal, the drug was approximately twice as toxic as picrotoxin or metrazol.® 4. Comroe and Dripps have been unable to demonstrate that nikethamide stimulates the carotid body, an action which might have given it some claim to preference over metrazol® or picrotoxin.

The clinical evidence, however, indicates that nikethamide is helpful in the treatment of mildly depressive states, such as from avertin® and the short-acting barbiturates. Tatum states, ". . . if life is not jeopardized through depression either coramine, caffeine or strychnine may effect arousal." Clinical reports advocate the use of nikethamide for the treatment of morphine depression, and in a series of patients suffering from opium poisoning it was found to be of value in all but the most severe conditions.

Strychnine.—Strychnine has its principal effect on the spinal cord; since most of the central depressants act on the medulla and the higher centers, it follows that strychnine cannot successfully combat these depressions. When it has been tested as an analeptic experimentally it has been found to be inferior to picrotoxin or metrazol.® The only possible rational use strychnine could have in analeptic therapy would be as an adjunct to other analeptics to improve muscle tone, and this seems an insufficient reason for one's continuing its use.

Sympathomimetic Amines.—As mentioned at the beginning of this report, sympathomimetic drugs to be used as analeptics should be those in which the central stimulant action is relatively strong and the peripheral sympathomimetic effect relatively weak; this includes amphetamine (benzedrine®), d-amphetamine (dexedrine®) and desoxyephedrine (methedrine®).

Amphetamine has been used in the treatment of psychic depressant states, but the drug has not been tested sufficiently to warrant definitive statements as to its efficacy in narcotic depressant states. A series of 14 cases of barbiturate poisoning has been reported in which amphetamine was used to effect 13 recoveries, but a careful survey revealed that 9 of the patients would probably have recovered without such treatment. Handly and his co-workers favored the use of amphetamine in the treatment of morphine poisoning, but their series was very small. When the drug is used as an analeptic, there is some evidence that it is toxic and it also may cause slight analgesia. The use of amphetamine or other sympathomimetic amines alone as analeptics should be reserved until further data are forthcoming, but these drugs may profitably be combined with metrazol® or picrotoxin therapy.

Miscellaneous Drugs.—Studies of caffeine have shown it to be ineffective as an analeptic per se in moderate or deep narcosis. In normal subjects caffeine produces cortical stimulation, but when used in large doses in the treatment of narcosis it is inferior to other analeptics and is a depressant per se. It can be most effectively used as an adjunct to other analeptic agents. The use of camphor as a stimulant has almost ceased, and while alpha lobeline frequently exerts a decided, but brief, stimulant effect on respiration via the carotid body reflex, its effects are uncertain and usually followed by a period of depression due to a nicotinic action. Alpha lobeline is not to be recommended in view of the availability of other better analeptic drugs.

Succinate, Pyruvate and Fumarate.—The first attempt to use one of this group of substances in the treatment of depressant states was by Soskin and Taubenhaus, who found that sodium succinate shortened the duration of pentobarbital and amytal® anesthesia in rats and in 1 human being with barbiturate depression. Subsequent work on laboratory animals has failed to substantiate these observations in part or in whole. However, clinical reports have appeared claiming that succinate led to a decreased sleeping time in patients who had received thiopental sodium for anesthesia and facilitated the arousal of patients with barbiturate and morphine poisoning. In addition to succinate, pyruvate and fumarate have been investigated, but neither decreased the total depression time. There are apparently no reports of any of these substances having been used against severe depressant states.

At the present time the only justification for using these agents is that overdosage is not associated with convulsions. There is no other reason for one's substituting them for other standard analeptic agents at present. Further evaluation is needed, particularly as to what effect the diuresis produced by the agents has on their efficacy as analeptic drugs, before decision can be reached.

SOURCES OF ERROR IN CLINICAL REPORTS

Under the standard conditions of a laboratory investigation results obtained and conclusions drawn concerning the action of a given drug may differ considerably with the effect observed when the same drug is administered to patients. Animal weight, diet, hydration, season, mode of drug administration, rate of administration, interval between drug administration and onset of treatment and care of animals during treatment can all be standardized or controlled. The human patient presents an entirely different problem, which makes clinical investigation and the interpretation of its results more difficult. In the particular question at hand, species difference only partially explains the discrepancies of the laboratory and clinical reports, on the one hand, and the clinical reports from different institutions, on the other. The following discussion concerns factors that should be recorded during the treatment of any depressant state, since any of these factors may strongly influence the outcome of treatment. We would like to urge their inclusion in all clinical reports.

Renal Function.—Some of the depressant drugs are eliminated from the body primarily by excretion in the urine; this is particularly true of the longer-acting barbiturates. Failure to maintain an adequate urinary output may result in a retention of these barbiturates with a prolongation of narcosis. It is questionable whether an excessive output will increase the excretion of barbiturate over that which would be normally excreted, but in animals massive intravenous infusions started in less than 30 minutes after the barbiturates were administered shortened the sleeping time, presumably because of retention of a greater portion of the drug dissolved in body fluids, thus facilitating excretion. Urinary output and the type and amount of fluid intake should be recorded.

Visceral Pathologic Changes.—The existence of pathologic changes in body viscera, notably the kidney and liver, may lead to confusion in interpreting the results of analeptic therapy. Many of the depressants are detoxified in the liver; consequently a damaged liver will lead to a prolongation of a depression caused by any of this group of drugs. Renal damage will lead to a failure to excrete drugs normally eliminated through the urine. Summaries of case histories of depressant poisoning or analeptic therapy should always include notes of coexistent disease, even though at present there may seem to be no relationship between this and the depression.

Gastric Lavage.—Gastric lavage is an important early step in the treatment of depressant poisoning when the agent has been ingested. It, unfortunately, may lead to confusion as to the amount of depressant actually absorbed. Careful notes should be made concerning the interval between drug ingestion and gastric lavage and of any evidence suggesting that some of the drug was removed with the lavage.

Time Interval Between Drug Administration and Onset of Treatment.—There are observations suggesting that the shorter the interval between drug administration and the onset of treatment, the more likely is the treatment to be successful. Certainly if the time interval is sufficient to allow irreversible tissue changes to occur, chances for recovery are materially shortened. The larger the dose of depressant the more important this interval would become. Wherever possible the clinician reporting on such cases should include this information.

Synergistic Action of More Than One Depressant.—When more than one agent has been responsible for the depression, the results of treatment may be obscured. Alcohol and the barbiturates act synergistically; and analeptics are then less effective. In laboratory animals, subconvulsive doses of morphine and analeptics led to convulsions, suggesting that the treatment of morphine or barbiturate plus morphine poisoning with analeptics may be ineffective. However, it must be remembered that morphine is not convulsant in human beings. Sulfonamide drugs and barbiturates may act synergistically, suggesting that antibiotics may be safer to use to prevent secondary infection in barbiturate poisoning.

Overstimulation with the Analeptic.—When overstimulation occurs during analeptic treatment, the evaluation of the case becomes difficult or impossible. The secondary depression following a convulsion, whether or not a barbiturate was needed to control the convulsion, may lead to a death when otherwise a successful outcome might be achieved.

When Analeptics Should Be Used.—If the mechanism of action of an analeptic can be accepted as a physiologic antagonism to a depressant drug, it follows that the analeptic should only be used when a drug depression exists. Anoxia and asphyxia are not indications for the administration of analeptics; adequate pulmonary ventilation with 100 per cent oxygen may lead to the reinstitution of respiration under these conditions when analeptics has failed.

CONCLUSION

In the light of the available published data the apparent mechanism of action of analeptics is a physiologic antagonism to depressant drugs, but in view of the needed investigation on the problem this can be no more than a tentative conclusion. Picrotoxin and metrazol® (pentamethylenetetrazol) are the most valuable analeptics obtainable today, with picrotoxin being the most potent, judging from laboratory research. Picrotoxin is also more dangerous to use and should only be used in deep depressions and then by someone well versed in its actions. Before the true part played by these drugs in the treatment of depressions can be fully evaluated, more complete and detailed clinical summaries must be made and compiled. The use of analeptics in the treatment of depressions should be only a part of a carefully integrated schedule of treatment including oxygen therapy, pressor drugs, fluid and pulmonary ventilation if necessary, as well as more than one analeptic if indicated.

Council on Physical Medicine

REPORTS OF THE COUNCIL

The Council on Physical Medicine has authorized publication of the following reports. Howard A. Carter, *Secretary.*

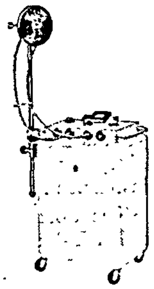
BIRTCHER CRYSTAL BANDMASTER SHORT WAVE DIATHERMY, MODEL 800 ACCEPTABLE

Manufacturer: The Birtcher Corporation, 5087 Huntington Drive, Los Angeles 32.

The Birtcher Crystal Bandmaster Short Wave Diathermy Model 800 has the U. S. Federal Communications Commission's Type Approval Certificate no. D-482 and operates on a frequency of 13.56 megacycles. The necessity for crystal control has been explained in The Journal, Sept. 6, 1947, pages 30-31. The apparatus is listed by the Underwriters' Laboratories, Inc.

This unit is shipped complete in one box. In the box is found the unit itself, a treatment arm with corner casting and treatment drum, a magnetic inductance cable, a line cord and a book of operating instructions.

The weight of the unit is given as 61 Kg. (135 pounds); the shipping weight is 98 Kg. (215 pounds). The dimensions are 91 by 55 by 43 cm. (36 by 21½ by 16 inches). The unit requires a 110 volt alternating current supply, and draws 7.5 amperes, making the power consumption 750 watts.



Birtcher Crystal Bandmaster S. W. Dia. Model 800

The cabinet and chassis are all steel, mounted on 7.6 cm. (3 inch) ball bearing, ball swivel casters. Large 30.5 cm. (12 inch) handles are built onto the steel cabinet to make the instrument readily mobile about the hospital or clinic.

The specimen submitted by the manufacturer was given a thorough clinical trial, and the Council obtained convincing evidence of satisfactory results with both the inductance cable and the circular disk applicator.

The Council on Physical Medicine voted to include the Birtcher Crystal Bandmaster Short Wave Diathermy Model 800 in its list of accepted devices.

PRECISION TABLE HEARING AID ACCEPTABLE

Manufacturer: Precision Electronics Company, 850 West Oakdale Avenue, Chicago 14.

The Precision Table Hearing Aid is designed for use in schoolrooms, homes, offices and other institutions where 115 volt 50 to 60 cycle alternating current is available. It is a ruggedly built hearing aid that can be set on a table or desk. Such an instrument can be much more economical than the battery-operated wearable types. The hearing aid amplifies sound from 100 to 15,000 cycles per second and peaks at the speech frequency range.

The Model 3AC21 submitted for examination was found to be a 3 tube so-called desk or table instrument designed to work from 110 volt alternating current lines. The case is constructed of light colored plywood and presents the general appearance of a midget radio. It is equipped with a crystal microphone, mounted in the front of the case. Output impedances are provided for use in either high or low impedance phones. The Precision Table Hearing Aid Model 3AC21 is marketed with dynamic or moving coil ear phones, crystal phones, high impedance magnetic phones or with the miniature hearing aid type of phone.

Combination on-off switch and volume control and tone control knobs are mounted on the front of the case. The tone control attenuates the low frequency response of the instrument.

A "Hi-Lo" switch on the back of the instrument regulates the maximum power output of the amplifier. The "Hi" position is intended for use with persons who have extreme hearing impairments.

This instrument is designed for instruction of children too young to wear individual hearing aids.

Dimensions.—225 by 156 by 125 mm. (8⅞ by 6⅛ by $4\frac{15}{16}$ inches).

Weight.—2.52 Kg. (5 pounds, 9 ounces).

Power Consumption.—21 watts.

Acoustic Gain for Speech.—The maximum gain for speech is limited by acoustic feedback. Consequently, the values obtained on hard-of-hearing persons reflect in part the tightness of the seal of the phones against the ears, the position of the subject in relation to the instrument and his distance away from it. Two adults who wear individual hearing aids, each with predominantly middle ear impairments of approximately 50 decibels, in a test perceived speech at a sound pressure level 40 to 44 decibels lower with this instrument than without it before feedback or squealing occurred while sitting about 4 feet from the aid.

Both preferred the quality of the dynamic and the crystal phones to the magnetic phones and the miniature hearing aid type crystal receiver.

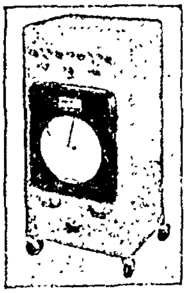
A phonograph input jack, which is provided in order that parents may take advantage of records for the speech training of hard of hearing children, is available for use with this instrument.

The Council on Physical Medicine voted to include the Precision Table Hearing Aid in its list of accepted devices.

COLEMAN ANOXIA PHOTOMETER, MODEL 17A, ACCEPTABLE

Manufacturer: Coleman Instrument Inc., 318 Madison Street, Maywood, Ill.

The Coleman Anoxia Photometer is a device designed to permit continuous observation of the degree of oxygenation of the circulating blood of the intact human subject. It utilizes the difference in color between oxidized and reduced blood, or, more specifically, the difference between oxidized and reduced blood as regards transparency to red light of wavelength between 600 to 700 millimicrons. Further details of theory and practice are given in a booklet of instructions.



Coleman Anoxia Photometer, Model 17A.

The apparatus consists essentially of two parts, a receptor or ear piece that is attached to the subject's ear and a cabinet that contains the indicating or recording instruments. The two parts are connected by a cable. The ear piece bears a light which shines through the more translucent parts of the external ear and is analyzed by the use of filters and photoelectric devices. The cabinet measures 94 by 36 by 46 cm. (37 by 15 by 18 inches). The apparatus weighs 57 Kg. (125 pounds); the domestic shipping weight is 73 Kg. (160 pounds), and the foreign is 95 Kg. (210 pounds). It requires a 115 volt alternating current supply, and draws 1 ampere or 115 watts. The instrument is available in two forms, the indicating and the recording. The indicating form utilizes a projection galvanometer that permits the observer to read the patient's relative oxygen saturation at any time; it is called Model 17-000. The recording form includes a device, separately housed, that provides a continuous record; it is Model 17-400. There is a third modification, Model 17-410, that includes all parts (with the exception of the ear pieces) in a single case. All models are provided with storage batteries to assure the constant voltage needed for their operation; there is also a battery charger that can be brought into action simply by closing a charging switch.

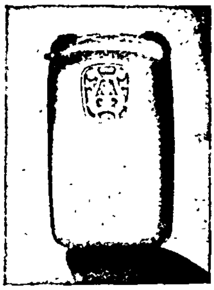
In practice, the ear piece is attached to the patient and the instrument is set at some assumed saturation level; thereafter the instrument will respond over extended periods to variations in saturation. If absolute instead of relative values are desired, the instrument must be calibrated on the basis of direct chemical determinations of the oxygen content of the blood by customary laboratory methods.

The Council on Physical Medicine voted to include the Coleman Anoxia Photometer, Model 17A, in its list of accepted devices.

SONOTONE HEARING AID, MODEL 900 ACCEPTABLE

Manufacturer: Sonotone Corporation, Elmsford, New York.

The Sonotone Hearing Aid, Model 900, is a so-called one piece three tube air or bone conduction instrument, the batteries of which are contained in the amplifier case. The front half of the case is constructed of metal with a rhodium finish and the back of the case is made of gray plastic. The lower half of the back of the case is hinged to give access to the battery compartments. Two different air conduction magnetic receivers, R-1 and R-2, and two different bone conduction oscillators, 01 and 02, are available for use with this instrument. The R-2 receiver has the wider frequency range, especially for the higher frequencies. The R-1 receiver is more efficient (more sensitive) for frequencies below about 1,800 cycles. The 02 bone conduction emphasizes the amplification of the higher frequencies more than the 01 receiver.



Sonotone Hearing Aid, Model 900.

Two wheel type controls are situated at the top of the case. One is a volume control; the other is a combination on-off switch and three position tone control—3 dot position for maximum wide range frequency response, 2 dot position for low frequency attenuation and 1 dot position for low frequency attenuation and about 10 decibel decrease in over-all amplification efficiency. A detachable wearing or attachment clip can be fastened either to the front or the back of the case. An extra battery cord is obtainable, which permits a large size external A battery to be used with this instrument for more economical operation if desired.

A series of tests gave the following data:

Dimensions.—111 by 67 by 25 mm. (4⅜ by 2⅝ by 1 in.).

Weight.—200 Gm., including batteries (7¼ ounces).

Battery Drain:

		Measured Voltage	Measured Current
A, Zinc and Carbon,	1.5 volts	1.4 volts	45 milliamperes
B, Zinc and Carbon,	22.5 volts	21.0 volts	0.56 milliampere

Acoustical Gain, Pure Tones:

Receiver	Tone Control Position	250	500	1000	2000	3000	4000 cycles
R1	3 dot	46.0	47.0	56.5	57.5	60.0	33 db.
R1	2 dot	34.5	41.5	54.5	57.0	60.0	33 db.
R1	1 dot	22.5	29.5	54.0	50.0	53.5	28 db.
R2	3 dot	36.5	32.5	38.5	51.5	63.5	41 db.

The gain of the bone conduction receiver was obtained in terms of gain for speech as described immediately below.

Gain for Speech.—The gain for air conduction with the RI receiver, 3 dot tone control position, was 50 decibels, with maximum gain setting of the volume control. This gain was obtained on 2 different hard of hearing persons having predominantly middle ear types of impairment, each of whom is an experienced user of hearing aids and has approximately 60 decibels unaided loss for speech with a speech audiometer. These persons perceived speech with 50 decibels less intensity from the loud speaker of a high quality sound amplification system (speech amplifier) in a sound-proof room with the hearing aid than without it.

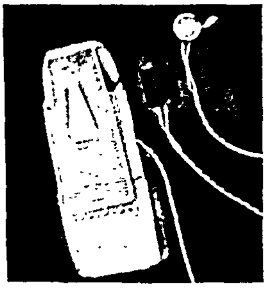
Equivalent gain for speech measurements with the 01 bone conduction oscillator, 3 dot tone control position, maximum volume setting, showed a gain for speech by bone conduction of 44 decibels. These measurements were obtained on 2 persons with approximately normal bone conduction acuity and uniform losses of 50 decibels for air conduction. Noise ascribable to clothing friction was reported to be low.

The Council on Physical Medicine voted to include the Sonotone Hearing Aid Model 900, in its list of accepted devices.

RADIOEAR PERMO-MAGNETIC HEARING AID (UNIPHONE ONE-PIECE MODEL) ACCEPTABLE

Manufacturer: E. A. Myers & Sons, Radioear Building, 306-308 Beverly Road, Mt. Lebanon, Pittsburgh 16.

The Radioear Permo-Magnetic Hearing Aid, Uniphone Model, is a three tube one piece hearing aid, designed to work in either an air conduction or a bone conduction receiver. The case is constructed of smooth, black or ivory plastic material, the lower front half of which opens to give access to the battery compartment. A magnetic type microphone and magnetic receivers are used with the instrument. Sound pressure variations reach the magnetic microphone diaphragm through recessed louvers on the side of the case adjacent to the microphone. This instrument is equipped with a "Phonemaster" coil adjacent to the microphone so that voice signals from the telephone may be picked up inductively and then amplified through the instrument's amplifier and miniature receiver. A wheel type combination on-off switch and volume control is located at the top of the case. A "Noisemaster" switch is on one side of the case and serves to attenuate both high and low frequencies in noisy environments if desired. A "Powerizer" switch, built into the amplifier chassis, makes it possible to regulate the maximum gain of the instrument over a 15 decibel range. The frequency response of the amplifier can be regulated by closing a hole in the microphone case and by adjusting the three position "Lo" and "Hi" tone-controls on the amplifier chassis. The "Powerizer" and tone control adjustments are accessible only after separating the front and back of the case.


Radioear Permo-Magnetic Uniphone Hearing Aid.

Dimensions: 168 by 64 by 25 mm. (6⅝ by 2½ by 1 inch).

Weight (including batteries, cord and air conduction receiver): 270 Gm. (9½ ounces).

Battery Drain:

		Measured Voltage	Measured Current
A, zinc and carbon,	1.5 volts	1.3 volts	40 milliamperes
B, zinc and carbon,	22½ volts	21 volts	0.19 milliampere

Acoustical Gain for Pure Tones:

Frequency	250	500	1,000	2,000	3,000	4,000 cycles
Maximum gain, air conduction	45	50	54	59	63	38 db.

Acoustical Gain for Speech: Two adults who wear hearing aids, each with predominantly middle ear impairments of approximately 50 decibels, perceived speech at a 44 decibel lower level by air conduction and 38 decibel lower level by bone conduction as measured by a speech audiometer. The "Phonemaster" reproduced speech at a level several (approx. 15) decibels higher than the average output level from telephone receivers.

The Council on Physical Medicine voted to include the Radioear Permo-Magnetic Hearing Aid, Uniphone One-Piece Model, in its list of accepted devices.

ALOETHERM CRYSTAL CONTROLLED SHORT WAVE DIATHERMY UNIT MODEL F-7300 ACCEPTABLE

Manufacturer: A. S. Aloe Company, Olive at Nineteenth Street, St. Louis 3.

The Aloetherm Crystal Controlled Short Wave Diathermy Unit Model F-7300 is an apparatus designed to deliver electromagnetic radiation with a frequency of 13.56 megacycles (22.12 meters), for administration of therapeutic heat to the tissues. The necessity for crystal control arises from the ruling of the Federal Communications Commission that it will be illegal to use, after July 1, 1952, any diathermy unit whose frequencies are not within assigned bands, in order to eliminate interference with commercial radio, amateur radio and television. The firm states that in general crystal control is the most effective and most widely used means of controlling the frequency range of diathermy apparatus, and that this method is less laborious and expensive than screening the treatment room.

The apparatus is contained within a case that can be moved about on casters. It is 107 cm. (42 inches) high, 66 cm. (26 inches) wide and 46 cm. (18 inches) deep. Without arms or cables it weighs 57 Kg. (125 pounds). When the drum is attached for use with the arm horizontally extended to its lowest vertical adjustment in the bracket and with the face of the drum parallel to the floor, the distance from the floor to the drum is 38 cm. (15 inches). When the arm is in full vertical extension with the drum at right angles to the floor the distance from floor to drum is 175 cm. (69 inches).

The unit operates on a 60 cycle alternating current of 110 to 120 volts. The chassis, bearing the transformers, condensers, tubes and crystal stage, can be lifted easily from the cabinet for inspection or servicing. With the apparatus there is furnished an electromagnetic treatment drum and electromagnetic inductance cable with spacers, a flexible arm and a line cord.

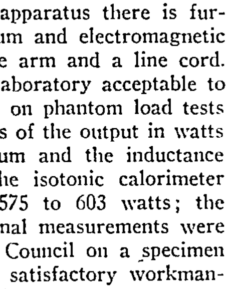
The firm submitted a report from a laboratory acceptable to the Council giving the results especially on phantom load tests made with Model F-7300. Measurements of the output in watts were made for both the inductance drum and the inductance cable, both the lamp load test and the isotonic calorimeter being used. The input ranged from 575 to 603 watts; the output, from 170 to 225 watts. Additional measurements were made in a laboratory acceptable to the Council on a specimen supplied by the firm, and the generally satisfactory workmanship, construction and performance of the apparatus were verified. It was noted that the apparatus is listed by the Underwriters' Laboratories.

The Council on Physical Medicine voted to include the Aloetherm Crystal Controlled Short Wave Diathermy Unit Model F-7300 in its list of accepted devices.

MEDIQUARTZ ULTRAVIOLET CABINET MODEL 420 ACCEPTABLE

Manufacturer: Medical Quartz Products Company, 5066 Santa Monica Boulevard, Los Angeles 27.

The Mediquartz Ultraviolet Cabinet Model 420 provides two sources of ultraviolet radiation. These are contained within a cabinet or box whose over-all dimensions are 41 by 23 by 12 cm. (16 by 9 by 4½ inches). It weighs 4.5 Kg. (10 pounds); the shipping weight is 6.8 Kg. (15 pounds). It operates on 110 volt alternating current and draws 69 watts. The cabinet is designed to be hung on a wall. Enameled with an ivory finish, it houses the controls in its lower portion; the upper portion has a glass door that gives access to the two ultraviolet generators. The cabinet contains the "Spot Irradiator" and the Orificial Applicator.


Mediquartz Ultraviolet Cabinet Model 420.

The Council on Physical Medicine voted to include the Mediquartz Ultraviolet Cabinet Model 420 in its list of accepted devices.

THE JOURNAL OF THE
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SATURDAY, MARCH 19, 1949

THE VOICE OF THE AMERICAN MEDICAL ASSOCIATION

"The objects of the Association are to promote the science and art of medicine and the betterment of public health."—Constitution of the American Medical Association, Article 2.

"The legislative body of the Association is the House of Delegates."—Constitution of the American Medical Association, Article 6.

"The House of Delegates is composed of delegates elected by the constituent associations and by the sections of the Scientific Assembly and of delegates from the Medical Departments of the United States Army, the United States Navy, the United States Public Health Service and Veterans Administration, appointed by the Surgeon General or Chief Medical Director, as the case may be, of the respective service."—Constitution of the American Medical Association, Article 6.

These quotations from the Constitution of the American Medical Association define clearly where responsibility lies for determining the policies of the Association. No committee, council, board, officer or employee of the Association is charged with establishing policies for the American Medical Association. The Association has not now and never has had an official spokesman.

In the Organization Section in this issue of The Journal appears an announcement by Dr. Elmer L. Henderson, Chairman of the Board of Trustees, concerning the present activities of the Board of Trustees in relation to extending medical care. In February the Board of Trustees announced the twelve point program, which is an expansion of other programs which the House of Delegates accepted and announced over a number of years. In making this announcement the Chairman of the Board of Trustees is not establishing any new policies. The announcement is made for information of the medical profession and the public concerning the activities of the Board of Trustees.

The employees of the American Medical Association now number about 800. Many councils, committees and bureaus are charged with specific duties by the Constitution and By-Laws. The President of the Association is elected annually as President Elect and succeeds to office one year following his election. His duties are specifically defined by the By-Laws, as are also the duties of each of the councils, committees and officers. All officials of the Association, including the President, the President Elect, the Secretary and the Chairman of the Board of Trustees, make public appearances and are interviewed. When they speak, they endeavor to interpret the policies of the House of Delegates. The employees of the Association, including the General Manager, the Editor, the secretaries of the various councils and committees and the directors of the bureaus, also make many public appearances; when they speak or when they are interviewed, they also present the policies adopted by the House of Delegates.

Recently the Association has established a division of public relations and has employed special public relations counsel in connection with a program of education of the American people regarding the present status of medical care and the proposals that have been made for extension of medical care. These agencies represent the American Medical Association. When they issue releases to the press or make public pronouncements, as they frequently do in delivering addresses, they also present the point of view of the House of Delegates.

The statements here made are intended to correct unwarranted misrepresentations as to the Association. The House of Delegates at the St. Louis session reaffirmed the point of view of the American Medical Association in its determined opposition to compulsory sickness insurance. The House of Delegates also recommended the widest possible extension of voluntary hospitalization and sickness insurance but did not consent to the formation of a national insurance company under the sponsorship of the American Medical Association. These are the two most prominent issues now discussed in editorial opinion throughout the United States. Until the House of Delegates acts to change a decision every council, bureau, officer and employee is bound by the prevailing actions of the House of Delegates.

CHOLINESTERASE INHIBITORS IN TREATMENT OF MYASTHENIA GRAVIS

The effectiveness of neostigmine in the treatment of myasthenia gravis is presumably based, at least in part, on the inhibiting power of this drug on cholinesterase. By controlling the enzyme, the specific function of which is to split acetylcholine, the transmission of the nerve impulse through the synapse at the myoneural junction in sufficient amount to create an adequate response in the skeletal muscle is, according to Nachmansohn,[1] thus made more certain. Similar action by other anticholinesterases, like physostigmine and strychnine, also prevents the rapid removal of the acetylcholine released during the passage of the nerve impulse. Further research has led to an investigation of some of the newer compounds known to inhibit cholinesterase, di-isopropyl-fluorophosphate (DFP), hexaethyl tetraphosphate (HETP), and tetra-ethyl pyrophosphate (TEPP).

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[1] Nachmansohn, D.: The Role of Acetylcholine in Conduction, Bull. Johns Hopkins Hosp. 83: 463-496 (Dec.) 1948.

Di-isopropyl-fluorophosphate, when given intramuscularly, definitely lowers plasma and red blood cell cholinesterase activity for long periods. Comroe [2] and his associates have shown that di-isopropyl-fluorophosphate can also improve muscle strength in patients with myasthenia gravis. Closely parallel results were found by Gaddum and Wilson [3] and by Harvey, Lilienthal, Grob, Jones and Talbot.[4] The gain in muscular power, however, despite the fact that di-isopropyl-fluorophosphate may lower the plasma cholinesterase to zero, is not as great as that obtained with neostigmine, and the unpleasant central nervous and gastrointestinal symptoms evoked by di-isopropyl-fluorophosphate preclude its use in amounts sufficient to produce adequate therapeutic effects. The reason for the relative failure of di-isopropyl-fluorophosphate as a therapeutic agent has not been fully determined. Since it is a highly lipid-soluble compound, whereas neostigmine is water soluble, it may not act at the myoneural junction as readily and efficiently as does neostigmine. The better results obtained by neostigmine, moreover, may be due to the possibility that it has a direct action on skeletal muscle that is not shared by di-isopropyl-fluorophosphate.

A second anticholinesterase compound recently given clinical trial in myasthenia gravis is hexaethyl tetraphosphate (HETP). The effects are not dissimilar to those seen with di-isopropyl-fluorophosphate, according to Westerberg and Luros,[5] but the toxic symptoms, except those of central origin such as persistent nausea and insomnia, are more readily controlled by atropine. The drug exerts a prolonged effect similar to that noted after the use of di-isopropyl-fluorophosphate, and, when it is combined with neostigmine, the clinical results are moderately satisfactory. The limitation of hexaethyl tetraphosphate results largely from its instability in aqueous solution, a physical property not yet overcome. The results of the early studies are mildly encouraging, but the value of hexaethyl tetraphosphate as an acceptable therapeutic agent has yet to be established.

Somewhat more satisfactory are the clinical responses observed after the use of a third anticholinesterase preparation, tetra-ethyl pyrophosphate (TEPP). Although the side effects are similar to those seen after the use of di-isopropyl-fluorophosphate or hexaethyl tetraphosphate, the dose can be more easily regulated, being more stable, and it is effective when given by mouth. Burgen, Kelle and McAlpine [6] found the drug a completely effective substitute for neostigmine, and, although it is from a third to a half as potent, its action lasted about twice as long. Tetra-ethyl pyrophosphate is more cumulative than neostigmine, but less so than di-isopropyl-fluorophosphate. Because of its cumulative action, the response is more even than that of neostigmine. Harvey,[7] moreover, found that when tetra-ethyl pyrophosphate was given in amounts sufficient to increase the muscular strength above a basic level, but not to a maximum degree, there was a significant potentiation of the effect of all subsequent doses of neostigmine. Thus the combination of tetra-ethyl pyrophosphate and neostigmine, given orally, would appear to be of value in augmenting the present treatment of myasthenia gravis by neostigmine alone. Toxic symptoms, however, are frequent, some of them overcome by atropine. Until these are eliminated, di-isopropyl-fluorophosphate, hexaethyl tetraphosphate and tetra-ethyl pyrophosphate are still not superior to neostigmine in the treatment of myasthenia gravis.

DISCONTINUATION OF TEMPORARY APPROVALS OF RESIDENCIES

Elsewhere in this issue is an announcement by the Council on Medical Education and Hospitals that the Council will no longer grant temporary approval to residency training programs. Henceforth residencies will be considered for approval only after they have been inspected by representatives of the Council. By this action the Council has returned to its traditional policy of approving only those institutions which have actually been inspected by its representatives.

At the end of the war the tremendous expansion of residency training programs to accommodate returning veterans made it essential that a procedure be developed which would permit the prompt handling of the large number of applications for approval of newly created residencies. Accordingly, in February 1946, the Council in conjunction with the Advisory Board for Medical Specialties and the individual American Boards adopted a plan of granting temporary approval pending inspection to hospitals that submitted sufficient information about their training programs to enable the Council to make a tentative evaluation of their adequacy. Hospitals granted temporary approval were inspected as quickly as possible, and after inspection either they were given full approval or their approval was withdrawn. This program of granting temporary approvals made it possible in the space of three years to increase the number of approved residencies from just over 5,000 to more than 15,000. In general the program worked well, although instances occurred in which hospitals were granted approval when they would not have been granted approval had they actually been inspected.

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[2] Comroe, J. H., Jr.; Todd, J.; Gammon, G. D.; Leopold, I. H.; Koelle, G. B.; Bodansky, O., and Gilman, A.: Effect of Di-Isopropyl-fluorophosphate (DFP) upon Patients with Myasthenia Gravis, Am. J. M. Sc. **212**: 641-651 (Dec.) 1946.

[3] Gaddum, J. H., and Wilson, A.: Treatment of Myasthenia Gravis with Di-Isopropyl Fluorophosphate, Nature **159**: 680-681 (May 17) 1947.

[4] Harvey, A. M.; Lilienthal, J. L., Jr.; Grob, D.; Jones, B. F., and Talbot, S. A.: Effects on Neuromuscular Function in Normal Subjects and in Myasthenia Gravis, Bull. Johns Hopkins Hosp. **81**: 267-292 (Oct.) 1947.

[5] Westerberg, M. R., and Luros, J. T.: Clinical Use of Hexaethyl Tetraphosphate in Myasthenia Gravis, Univ. Hosp. Bull., Ann Arbor **14**: 15-17 (Feb.) 1948.

[6] Burgen, A. S. V.; Kelle, C. A., and McAlpine, D.: Tetra-Ethyl-pyrophosphate in Myasthenia Gravis, Lancet **1**: 519-521 (April 3) 1948.

[7] Harvey, A. McG.: Some Physiological Experiments of Nature in the Field of Neuromuscular Function: Tetra-Ethyl Pyrophosphate in the Treatment of Myasthenia Gravis, Potassium Deficiency, Potassium Intoxication, Proc. Inst. Med. Chicago **17**: 182-188 (Nov. 15) 1948.

The expansion of residency training has not halted, and it will now be possible to inspect all hospitals making application before granting approval. Approval based on the actual inspection of a hospital is essential for the maintenance of high standards of graduate training. Those hospitals holding temporary approval as of Jan. 1, 1949 will continue to hold such approval until they are inspected and decision is reached whether to grant them full approval or to withdraw approval.

The problem of appraising residency programs during the last three years has placed a burden on the Council and the American boards which cooperate with the Council. While delay in acting on applications has been unavoidable in many cases, the Council and the boards may take pride in the fact that during the period in question under their guidance the opportunities for residency training in the United States were more than trebled without any serious lowering of quality.

MORTALITY AND MORBIDITY STUDIES ON GROUP INSURANCE

A study of the frequencies of operations performed on employees and their dependents covered by group insurance contracts, and the charges made by the doctors for such operations, has just become available.[1] The claims studied were made in the periods from March 1946 to June 1947. The physicians' fees were collected from March 1947 to October 1947. Obstetrical benefits were omitted from this study.

The group of operations included tonsillectomy, appendectomy, benign tumor, hemorrhoidectomy, fracture, hysterectomy and herniotomy, which accounted for 58 per cent of the operations among employees and 69 per cent among the dependents. Tonsillectomy alone accounted for 60 per cent of the operations among children. The frequency for female employees was 23 per cent of all operations, and boys required 15 per cent more operations than girls.

When more than one operation was performed, the major operation or surgical procedure was coded as the first procedure; if it was not possible to make such a decision, the first procedure was determined by the largest reimbursement. The average reimbursement for multiple procedure claims was about twice that for single procedure claims. Female employees and wives of employees required more multiple operations than did the males; 24 per cent for female employees and 31 per cent for wives. Multiple procedure claims were reported in 17 per cent of the cases, with gynecology reaching a high of 51 per cent of this group and eye, ear, nose and throat operations at the other extreme of only 5 per cent. The most common combination of operations was hysterectomy and appendectomy, which represented 6.2 per cent of the total.

Most surgical treatment was performed in the hospital, but some was done out of the hospital; the reimbursement was lower for the latter type, usually less than 50 per cent of that for the inhospital surgical treatment. About 20 per cent of the employee operations and 13 per cent of the operations on dependents were performed out of the hospitals. Males had the largest amount of surgical treatment out of the hospitals.

The ratio of the reimbursement to the doctor's charge was about 54 per cent for all employees and 56 per cent for dependents. For the whole group it was 55 per cent. For every specific procedure the average charge for inhospital claims was greater than that for out of hospital claims; this reflects the tendency to perform the more serious operations in the hospital. In about 50 per cent of the cases the doctor's charge was not more than 92 per cent of the average charge per claim under the schedule of $150 maximum reimbursement; this is true for both inhospital and out of hospital claims. In 60 per cent of the cases the doctor's charge was not more than 106 per cent of the average charge.

Current Comment

EXCERPTA MEDICA

When the periodical *Excerpta Medica* was established in Holland, the authorities approached the American Medical Association with a view to a cooperative effort in the indexing and abstracting of medical periodicals. As a result of negotiations between Dr. M. W. Woerdeman, professor of anatomy and embryology in the University of Amsterdam, who is chairman of the board of editors, Dr. Morris Fishbein, Editor of The Journal of the American Medical Association, has been appointed one of the chief editors of *Excerpta Medica*. Studies are now in process to determine whether or not it will be feasible to indicate in the *Quarterly Cumulative Index Medicus* the articles that are abstracted in *Excerpta Medica* and also to utilize the services of the Dutch organization in the indexing of a greater number of periodicals than is now possible in the *Quarterly Cumulative Index Medicus*. UNESCO is also greatly interested in the development of a single international abstract of the important medical literature of the world. Conceivably from all these efforts great progress will be made in indexing and abstracting medical periodical literature.

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[1] Reprinted from the Tr. Actuarial Soc. America 49: (May) 1948.

ORGANIZATION SECTION

Official Notes

POLICY OF BOARD OF TRUSTEES FOR ACTION ON 12 POINT PROGRAM

In May 1948 a National Health Assembly was called by Federal Security Administrator Oscar Ewing in which all groups with an interest in medical care were represented. The assembly met in sixteen sections, each of which brought in a report constituting a plan for progress in health activities. The reports of these sections have not yet become available except for the inclusion of the condensed report of the section on medical care, by the Federal Security Administrator, in a report entitled "The Nation's Health: A Ten Year Program," published in September 1948.

When the full reports become available, the valuable material developed at the National Health Assembly may well serve as a basis of discussion and implementation of any program for the extension of medical care. When the National Health Assembly adjourned, most of those in attendance believed that the executive committee would carry on the studies and recommendations of that conference, but thus far only one meeting has been held. Otherwise, as far as can be determined, nothing has been done. The American Medical Association is ready to assume leadership in carrying out the recommendations of all of the sections which do not disagree with the fundamental policies established by the House of Delegates of the American Medical Association. Apparently the one point of issue remains the question of compulsory sickness insurance. The report of the section on medical care recommended the widest possible extension of voluntary hospitalization and sickness insurance. The House of Delegates at its meeting in St. Louis again reaffirmed its opposition to a system of compulsory sickness insurance.

The Board of Trustees of the American Medical Association is in constant touch and holds frequent conferences with various consumer groups and organizations. Proposals have been made for the American Medical Association to call another national health conference. It would be impractical to try to assemble another health conference until the report of the Assembly held in 1948 becomes generally available and until the reaction of the professions concerned and the public to those reports can be developed. The Board of Trustees wishes it clearly understood that it is prepared at the proper time not only to continue conferences already instituted but to call conferences with other consumer groups and to do whatever else is necessary to assure a better distribution of the high quality of medical care now existing in the United States.

Elmer L. Henderson, M.D.
Chairman, Board of Trustees,
American Medical Association.

MAYO CLINIC GROUP MEETS ASSESSMENT

Following is a letter sent by representatives of the Mayo Clinic and the Mayo Foundation to the secretary of the medical society with which they are affiliated:

Dr. H. M. Carryer, Secretary-Treasurer
Olmsted-Houston-Fillmore-Dodge County Medical Society
Mayo Clinic
Rochester, Minnesota

Dear Doctor Carryer:

In payment of the assessment of $25.00 requested of each of its members by the American Medical Association, we are pleased to transmit to the Olmsted-Houston-Fillmore-Dodge County Medical Society the attached check for $13,750.00. This sum is the payment of 210 members of the staff of the Mayo Clinic and 340 fellows of the Mayo Foundation, which is 97.7 per cent of the staff and 99.7 per cent of the fellowship personnel who are members of the local county medical society. The names of the individual physicians are attached. The figures given are exclusive of 20 staff members and 26 fellows who have not yet had the opportunity to contribute because of illness or absence from Rochester. There is every reason to believe that the response of this group will be equal to that cited above.

The members of the staff and the fellows of this institution are well aware of the efforts of the American Medical Association to devise methods for distributing medical care more widely by means of voluntary prepayment plans, and, almost unanimously, they desire to support these efforts.

It is to be hoped that such methods for extending medical care as might be devised by the American Medical Association will safe-guard or even improve the present high quality of medical service, and that the program will be such as to enlist the continued whole-hearted support of virtually all the physicians of the country. It is highly desirable that physicians present a united front in efforts to improve the distribution of medical care.

Arlie R. Barnes, M.D., Chairman
Board of Governors, Mayo Clinic
Victor Johnson, M.D., Director
Mayo Foundation for Medical
Education and Research

Washington Letter

(From a Special Correspondent)

March 14, 1949.

Hoover Commission Recommends New Agency

Establishment of a new federal agency—the United Medical Administration—to administer virtually all of the government's medical and hospital care, medical research and public health activities has been recommended by the Hoover Commission. As described in the official report just submitted to Congress, the United Medical Administration would absorb the United States Public Health Service, practically all continental hospitals of the armed forces and all medical-hospital functions of the Veterans Administration.

Effectuation of the Hoover Commission's proposals depends on (1) willingness of Congress to give President Truman the reorganization authority which he has requested and (2) the President's choice in the matter. Dr. Paul B. Magnuson, chief medical director of Veterans Administration, is on record in favor of the principle of consolidating federal medical services. Medical departments of Army and Navy are strongly opposed to relinquishing any of their hospitals. The Federal Security Agency, of which U. S. Public Health Service is a component, supports inclusion of federal medical services in the proposed Department of Welfare, rather than establishment of an independent United Medical Administration, responsible directly to the President, as recommended by the Hoover Commission.

As Secretary of Defense, James Forrestal abstained from participating in preparation of the report. Of the other eleven members, opinion was sharply divided over the major issue considered, whether or not a new agency should be set up. Scarcely a majority reached agreement on the United Medical Administration plan. Chairman Herbert Hoover and former Representative Carter Manasco dissented from the majority provision that the agency be served by a board that would be advisory only. Army, Navy, Air Force and Veterans Administration would be represented on the board. Representative Clarence J. Brown wrote a separate opinion protesting vigorously against absorption of military hospitals by a civilian branch of the federal government. Another member of the Commission, Senator John L. McClellan, concurred. Another minority opinion was submitted by Secretary of State Dean Acheson (vice chairman of the Hoover Commission), Senator George D. Aiken and James Rowe Jr., advocating integration of health services with education and security functions in a Department of Welfare.

The military would retain overseas hospitals, but all situated in this country would be surrendered, except certain station hospitals in outlying areas and one general hospital to be kept by each of the three armed services for research and teaching purposes. The plan further proposes that "professional personnel of the services might be assigned to the new administration for duty, research and training."

Indian hospitals and those administered by the Bureau of Prisons, Atomic Energy Commission, Tennessee Valley Authority and U. S. Soldiers Homes in Washington and Philadelphia would not be transferred. The proposed United Medical Administration, says the report, should be headed by "an outstanding administrator," but it is not required that he be a physician.

Ellender Defines His Position on Health Legislation

Senator Allen J. Ellender (Democrat, Louisiana) made it clear on March 5 that he is opposed to the Murray-Wagner-Dingell bill. The occasion was his weekly transcribed radio talk, broadcast by several Louisiana stations. He set forth his position on the health issue because several days earlier a news report had stated erroneously that he sided with Rep. John D. Dingell (Democrat, Michigan) in a televised debate in which the case against compulsory sickness insurance was argued by Senators H. Alexander Smith (Republican, New Jersey) and George W. Malone (Republican, Nevada). Actually, participants in the debate were Senator James Murray (Democrat, Montana) and Representative Dingell versus Senators Ellender and Malone.

"I want to again emphatically state," said Senator Ellender on March 5, "that I am opposed to socialized medicine in any form. I am opposed, specifically, to the President's compulsory health insurance plan now pending before Congress."

Representative Priest Heads Health Subcommittee

Representative J. Percy Priest (Democrat, Tennessee) has been appointed chairman of the newly formed subcommittee on public health, science and commerce of the House Committee on Interstate and Foreign Commerce. Formation of the subcommittee, which will handle national health, science foundation, local public health units and virtually all other medical and health legislation introduced in the House, was announced March 3—exactly two months after convening of the Eighty-First Congress. Other members are (Democrats) Representatives George G. Sadowski (Michigan), Thomas B. Stanley (Virginia), William T. Granahan (Pennsylvania), Andrew J. Biemiller (Wisconsin) and George H. Wilson (Oklahoma) and (Republicans) Representatives Joseph P. O'Hara (Minnesota), Wilson D. Gillette (Pennsylvania), Hugh D. Scott Jr. (Pennsylvania) and John B. Bennett (Michigan).

Under the chairmanship of Representative Priest, who also holds the important post of "whip" of the House Democratic membership, it will be up to the subcommittee to decide whether public hearings shall be held on the Murray-Wagner-Dingell bill, numerous special disease bills (multiple sclerosis, arthritis, epilepsy, cerebral palsy and others), proposed amendments of the Hill-Burton hospital survey and construction act, federal subsidization of local public health units and all enabling legislation involving the U. S. Public Health Service.

Hearings Open on Veterans Hospital Cutback

Scheduled to last for at least two weeks, hearings were opened March 10 by a special subcommittee of the Senate Labor and Public Welfare Committee on the proposed curtailment of the veterans hospital expansion program. Witnesses representing the American Legion and the Veterans of Foreign Wars, among the first to be heard, denounced President Truman's executive order of January 10 canceling plans for construction of twenty-four hospitals and reducing the size of fourteen others in order to effect a 16,000 bed cutback. Senator Claude Pepper (D., Fla.), chairman of the subcommittee, is opposed to the order, although he rarely takes exception to Truman policies. He has invited veterans' leaders, medical societies and public agencies in the nineteen affected states to send representatives here to testify on the cutback, with hearings scheduled to proceed until March 26.

Coming Medical Meetings

Alabama, Medical Association of the State of, Montgomery, April 19-21. Dr. Douglas L. Cannon, 519 Dexter Ave., Montgomery 4, Secretary.

American Association for Thoracic Surgery, New Orleans, March 29-31. Dr. Brian Blades, George Washington University Hospital, Washington, D. C., Secretary.

American Association of Anatomists, Philadelphia, April 13-15. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

American Association of Genito-Urinary Surgeons, White Sulphur Springs, W. Va., Greenbrier Hotel, May 9-11. Dr. Norris J. Heckel, 122 S. Michigan Ave., Chicago 3, Secretary.

American Association of Industrial Physicians and Surgeons, Detroit, Book-Cadillac and Statler Hotels, April 5-9. Dr. Edward C. Holmblad, 28 E. Jackson Blvd., Chicago 4, Managing Director.

American Association of Pathologists and Bacteriologists, Boston, April 15-16. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Association on Mental Deficiency, New Orleans, Hotel Roosevelt, April 27-30. Dr. Neil A. Dayton, Box 51, Mansfield Depot, Conn., Secretary.

American Broncho-Esophagological Association, Chicago, Drake Hotel, April 18-19. Dr. Edwin N. Broyles, 1100 N. Charles St., Baltimore 1, Secretary.

American College of Allergists, Chicago, April 14-17. Dr. Fred W. Wittich, 423 LaSalle Medical Bldg., Minneapolis 2, Secretary.

American College of Physicians, New York, March 28-April 1. Dr. George Morris Piersol, 4200 Pine St., Philadelphia 4 Secretary General.

American Industrial Hygiene Association, Detroit, Book-Cadillac and Statler Hotels, April 5-7. Dr. Henry F. Smyth Jr., 4400 Fifth Ave., Pittsburgh 13, Executive Secretary.

American Laryngological, Rhinological and Otological Society, Chicago, Drake Hotel, April 18-20. Dr. C. Stewart Nash, 277 Alexander St., Rochester 7, New York, Secretary.

American Orthopsychiatric Association, Chicago, Stevens Hotel, April 4-6. Nina Ridenour, Ph.D., 25 W. 54th St., New York 19, Secretary

American Pediatric Society, Atlantic City, May 5-6. Dr. Henry G. Poncher, 1819 W. Polk St., Chicago 12, Secretary.

American Physiological Society, Detroit, April 19-22. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Executive Secretary.

American Society for Clinical Investigation, Atlantic City, May 2. Dr. Paul B. Beeson, Grady Hospital, Atlanta 3, Georgia, Secretary.

American Society for Experimental Pathology, Detroit, April 18-22. Dr. Frieda S. Robscheit-Robbins, 260 Crittenden Blvd., Rochester, N. Y., Secretary.

American Society for Pharmacology and Experimental Therapeutics, Detroit, April 18-22. Dr. Harvey B. Haag, Medical College of Virginia, Richmond 19, Secretary.

American Society for Research in Psychomatic Problems, Atlantic City, Chalfonte-Haddon Hall, April 30-May 1. Dr. Sydney G. Margolis, 714 Madison Ave., New York 24, Executive Secretary.

American Society of Biological Chemists, Detroit, April 17-22. Dr. Otto A. Bessey, 1853 W. Polk St., Chicago 12, Secretary.

American Surgical Association, St. Louis, April 20-22. Dr. Nathan Womack, University of Iowa, Iowa City, Secretary.

Arizona State Medical Association, Tucson, May 8-10. Dr. Frank J. Milloy, 15 E. Monroe St., Phoenix, Secretary.

Arkansas Medical Society, Little Rock, April 14-16. Dr. William R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Association of American Physicians, Atlantic City, May 3-4. Dr. Henry M. Thomas Jr., 1201 N. Calvert St., Baltimore 2, Secretary.

California Medical Association, Los Angeles, May 8-11. Dr. L. Henry Garland, 450 Sutter St., San Francisco 8, Secretary.

Connecticut State Medical Society, New Britain, State Teachers' College, May 3-5. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.

Federation of American Societies for Experimental Biology, Detroit, April 18-22. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Secretary.

Florida [illegible] April 10-13. Dr. Robert B. McIver, 111 W [illegible] Secretary.

Georgia, [illegible] vannah, Hotel De Soto, May 10-13. Dr. E [illegible] ee St., N.E., Atlanta, Secretary.

Hawaii [illegible] on, Honolulu, May 5-8. Dr. Harry L. Ar [illegible] St., Honolulu, Secretary.

Iowa State Medical Society, Des Moines, April 18-21. Dr. Allan B. Phillips, 406 Sixth Ave., Des Moines 9, Secretary.

Kansas Medical Society, Topeka, May 9-12. Dr. D. D. Vermillion, 512 New England Bldg., Topeka, Secretary.

Louisiana State Medical Society, New Orleans, May 5-7. Dr. P. T. Talbot, 1430 Tulane Avenue, New Orleans 13, Secretary.

Maryland, Medical and Chirurgical Faculty of the State of, Baltimore, April 26-27. Dr. George H. Yeager, 1211 Cathedral St., Baltimore 1, Secretary.

Medical Library Association, Galveston, Texas, April 10-14. Miss Mildred R. Crowe, Medical College of Alabama Library, Birmingham 5, Ala., Secretary.

Michigan Postgraduate Clinical Institute, Detroit, Book-Cadillac Hotel, March 23-25. Dr. L. Fernald Foster, 2020 Olds Tower, Lansing 8, Mich., Secretary.

Minnesota State Medical Association, St. Paul, Municipal Auditorium, May 9-11. Dr. B. B. Souster, 496 Lowry Medical Arts Bldg., St. Paul 2, Secretary.

Mississippi State Medical Association, Biloxi, May 10-12. Dr. T. M. Dye, Box 295, Clarksdale, Secretary.

Missouri State Medical Association, Kansas City, March 27-30. Mr. T. R. O'Brien, 634 N. Grand Blvd., St. Louis 3, Secretary.

National Tuberculosis Association, Detroit, May 2-6. Dr. H. Stuart Willis, 1790 Broadway, New York 19, Secretary.

Nebraska State Medical Association, Omaha, Hotel Paxton, May 2-5. Dr. R. B. Adams, 416 Federal Securities Building, Lincoln 8, Nebraska, Secretary.

New Jersey, Medical Society of, Atlantic City, Hotel Ambassador, April 25-28. Dr. Earl L. Wood, 315 W. State St., Trenton 8, Secretary.

New Mexico Medical Society, Roswell, May 5-7. Dr. H. L. January, 221 W. Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, Buffalo, Hotel Statler, May 2-6. Dr. Walter P. Anderton, 292 Madison Ave., New York 17, Secretary.

North Carolina, Medical Society of the State of, Pinehurst, The Carolina, May 9-11. Dr. Roscoe D. McMillan, P. O. Box 232, Red Springs, Secretary.

Ohio State Medical Association, Columbus, April 19-21. Mr. Charles S. Nelson, 19 E. State St., Columbus 15, Executive Secretary.
Rhode Island Medical Society, Providence, May 11-12. Dr. Morgan Cutts, 106 Francis St., Providence 3, Secretary.
Southern Branch, American Public Health Association, Dallas, Texas, Baker Hotel, April 14-16. Dr. George A. Denison, 600 S. Twentieth St., Birmingham, Ala., Secretary.
Southwest Allergy Forum, El Paso, Texas, Hotel Paso del Norte, April 4-5. Dr. O. E. Egbert, First National Bank Bldg., El Paso, Secretary.
Tennessee State Medical Association, Chattanooga, April 12-14. Dr. W. M. Hardy, 706 Church Street, Nashville 3, Secretary.
Texas, State Medical Association of, San Antonio, May 2-5. Dr. Harold Williams, 700 Guadalupe St., Austin, Secretary.
Western Association of Industrial Physicians and Surgeons, Los Angeles, Hotel Biltmore, May 7. Dr. Christopher Leggo, Crockett, Calif., Secretary.

Medical Legislation

STATE LEGISLATION

Connecticut

Bills Introduced.—H. 1063, to amend the workmen's compensation act, proposes to permit an injured employee a **free choice of physicians**. H. 1110 proposes that nothing in the general statutes shall be construed as prohibiting a physician licensed to practice medicine from prescribing any method or means for the **temporary prevention of pregnancy** in a married woman when in the opinion of such physician pregnancy would endanger the life or injure the health of such woman. H. 1413 and S. 901 propose the creation of a **system of health insurance**. H. 1577 proposes the appointment of a joint committee on public health and safety to "make an **intensive investigation on the subject of pain, sickness and death** and shall report to the governor not later than July 1, 1950, making recommendations for the elimination of pain, sickness and death." S. 657 proposes an appropriation to the state department of health to furnish services for children who have **cerebral palsy** or who are suffering from conditions which lead to cerebral palsy, such services to include the locating of the children, the provision of medical, surgical, corrective and allied services and care and the provision of facilities for hospitalization and after-care. S. 840 proposes to require physicians having knowledge that a wound has been caused as a result of the **discharge of a firearm** to report the same to the local prosecuting officer or state's attorney in the county in which he resides. S. 922 proposes to require all physicians and midwives to report **all cases of abortion** to the local prosecuting officer or the state's attorney in the county in which they reside. S. 965 proposes the establishment of an institution to be known as the **Connecticut Center for the Rehabilitation of Spastics** for the care, treatment, training and rehabilitation of spastics.

Idaho

Bill Introduced.—H. 290 proposes to authorize boards of county commissioners to levy a special tax to be used solely and exclusively for **preventive health services** by county boards of health.

Bill Enacted.—H. 34 has become chapter 23 of the Laws of 1949. It repeals and reenacts the existing medical practice act of the state with extensive amendments. Among other changes are the creation of an **independent state board of medical examiners**, provisions for the granting of temporary licenses and authorization to make use of the injunctive process in enforcing the provisions of the act.

Illinois

Bill Introduced.—S. 127 proposes the enactment of a **disability compensation act.**

Indiana

Bills Introduced.—S. 157, to amend the medical practice act, proposes to eliminate therefrom the provisions authorizing the use of the **injunctive process** to punish violators of the act. S. 259 proposes to make relevant in **actions involving illegitimacy** the results of blood tests of the complainant, her child and the defendant made to determine whether or not the defendant can be excluded as being the father of the child. The result of the test would be admissible in evidence only in cases where definite exclusion is established.

Iowa

Bill Introduced.—S. 339 proposes the enactment of a food and drug act providing, among other things, that any drug sold at retail and containing any quantity of **aminopyrine, barbituric acid, pituitary, thyroid** or their derivatives must be labeled in accordance with the provisions of the act unless it is sold on the written prescription of a doctor, dentist or veterinarian.

Kansas

Bills Introduced.—H. 200 proposes the enactment of a **board of nurse registration** and nursing education for the licensing of professional and practical nurses. Practical nursing would be defined by the proposal as meaning the performance for compensation, personal profit or gratuitously by members of religious communities, of such duties as are required in the physical care of a convalescent, a chronically ill or an aged or infirm patient, and in carrying out such medical orders as prescribed by a licensed physician, requiring a knowledge of simple nursing procedures but not requiring the professional knowledge and skills required for professional nursing. H. 307 proposes that regularly licensed schools for the purpose of **teaching chiropractic** shall have extended to them the same privileges as to the use of bodies for dissecting, demonstrating or teaching as those granted in this state to medical colleges.

Maine

Bill Introduced.—H. 1581, to amend the workmen's compensation act, proposes to permit injured employees to receive **chiropractic services.**

Maryland

Bills Introduced.—H. J. R. 11 proposes that the **Congress of the United States be memorialized not to enact legislation that has been proposed the effect of which will be to bring the practice of medicine in this country under federal direction and control.** H. 152, to amend the law relating to the **practice of chiropractic**, proposes, among other things, that a license to practice chiropractic shall not include the right to practice obstetrics. S. 211 proposes to amend the medical practice act so that the term "physician" shall be construed to **include chiropractic** as well as medical physicians.

Minnesota

Bills Introduced.—H. 419 proposes the enactment of a **disability benefits law.** H. 838, to amend the state narcotic act, proposes to include amidone, isoamidone, and keto-bemidome within the definition of "**narcotic drugs.**" H. 1091 proposes to make it unlawful for any female to submit to the act or operation of **artificial insemination**, or for any person to perform the act or operation of artificial insemination upon any female, or to assist, aid or abet any person in the performance of such act, or to donate, contribute or collect semen therefor, unless such woman is married and her husband has consented in writing under oath to such act or operation, and only the semen of the husband is used therefor. A child born in accordance with the provisions of this act would be considered the legitimate, natural child of both the husband and the wife for all purposes.

Nebraska

Bill Enacted.—L. B. 48 was approved Feb. 15, 1949. It authorizes counties to create the office of coroner's physician and provides that such physician shall make **postmortem examinations** of bodies and give testimony as to the same without witness fees in all inquisitions and state and county cases when called by the coroner, county or state.

Nevada

Bill Introduced.—A. 122, to amend the law relating to vital statistics, proposes to require physicians to report to the proper law enforcement officer any death which occurs during the **administration of any anesthetic** or during a surgical operation or any other medical procedure.

New Mexico

Bills Introduced.—H. 213 proposes to repeal a law enacted in the 1947 session which required all practitioners of the healing art to **designate the school of practice** which they intend to practice on all stationery, signs, advertisements, etc. S. 195 proposes to amend the **osteopathic practice act** by repealing the "as taught" definition of osteopathy and substituting therefor the following: "Persons who treat human ailments by that system of the healing arts which places the chief emphasis on the structural integrity of the body mechanism as being the most important factor for maintaining the organism in health."

North Carolina

Bill Introduced.—S. 96 proposes that a **physician or midwife** having charge of a birth of a **prematurely born infant** shall immediately give notification thereof to the local health department of the county in which the infant was born. S. 150 proposes to require every physician to notify the local health officer of the name of any person by whom such physician is consulted professionally and who is found to **have cancer of any type.**

Ohio

Bills Introduced.—H. 99 proposes the creation of a classification to be known as **public health sanitarian** which would be defined to mean a person trained in the field of sanitary science and sanitary technology who is qualified to carry out educational and inspectional duties and to enforce the law in the field of sanitation. H. 444 proposes to make it a **misdemeanor** for any person not licensed to practice a profession in the state **to advertise** in any manner whatever leading the public to believe that he is authorized to practice such profession or to list his name in any directory, newspaper, magazine, etc., suggesting that he is authorized to practice such profession or to use in connection with his name any word, title, symbol, letters or abbreviations suggesting that he is authorized to practice such profession or to offer any service, advice, counsel or assistance such as is customarily offered or rendered by persons licensed to practice such profession. S. 133 proposes the creation of a state **naturopathic board** of examiners and defines naturopathy as that philosophy and system of the healing art embracing prevention, diagnosis and the care of and treatment of human ills, diseases, traumas, deformities and functions by the use of the several properties of air, light, heat, cold, water, mechanics, electricity, manipulation and psychology, together with the use of such substances, largely nutritional, of plant, animal or mineral origin as are naturally found in and required by the body. Naturopaths, by virtue of this proposal, would not be permitted to practice major surgery or use x-ray, radium and radioactive substances for therapeutic purposes or to prescribe for internal use any substance required by law to be labeled poison. S. 151 proposes to amend the **privileged communications** statute so as to include communications between a physician and his patient in certain instances.

Wisconsin

Bill Introduced.—A. 314, to amend the workmen's compensation act, proposes to make the employer liable for reasonable expense incurred by an employee for fees of physicians and other experts appearing as witnesses in his behalf.

GOVERNMENT SERVICES

ARMY

REORGANIZATION OF ARMY HOSPITALS TO CONSERVE MEDICAL PERSONNEL

The Surgeon General of the Army announced March 1 the proposed streamlining of wartime military hospitals in overseas theaters to effect greater economy in the use of personnel in scarce professional categories. The proposed organization is the result of a study of the experiences of the Army Medical Department in overseas theaters during combat. The main wartime obstacle was the lack of flexibility in the use of professional personnel inherent in the older and more rigid Table of Organizations, under which equipment and personnel were welded together as a unit. This concept required larger numbers of professional personnel and was responsible for much enforced idleness during the war. The proposed plan reduces the number and type of medical organizations and authorizes a split between equipment and administrative, on the one hand, and professional personnel on the other.

Under the new plan, which has the approval in principle of the General Staff, the "professional complement," as it will be called, will not join the unit until the last practical moment. In this way, the personnel in scarce categories will be available for use at other installations, or may even remain longer in the civilian community, until the time when they are actually needed with their parent unit.

"The idleness of valuable personnel had serious effects," the Surgeon General stated. "These professional men and women were not being used economically. More physicians, dentists, nurses and others were called into the service than necessary, creating a shortage in the civilian economy and adversely affecting morale in civilian as well as military medical circles."

The final details will be field tested in the near future. It is expected there will be more units consisting of equipment and administrative personnel than there will be professional complements. It is planned that the professional complements, once their duties in a hospital have been completed and the patients evacuated, will move as a team to another hospital unit which has been made ready in a more forward area of the combat zone. Professional complements will be further augmented by specialist teams as required. This will likewise contribute to greater utilization of specialists.

OFFICERS TO PURSUE ADVANCED CIVILIAN COURSES

The following medical officers have been accepted for advanced courses in the civilian schools and hospitals indicated:

Col. Wendell A. Weller, University of California, San Francisco, ear, nose and throat pathology.

Lieut. Col. T. Donald McCarthy, University of Kansas Medical Center, Kansas City, *radiology physics.*

Major Herbert P. Sube, University of California, San Francisco, ear, nose and throat pathology.

Capt. Ralph N. Kraus, University of California, San Francisco, ear, nose and throat pathology.

Capt. Marion E. McDowell, University of Rochester, School of Medicine and Strong Memorial Hospital, Rochester, N. Y., residency training in internal medicine.

Capt. Frederick F. Krauskopf, Jackson Memorial Hospital, Miami, Fla., assistant residency in surgery.

Capt. Richard A. Hayden, St. Mary's Hospital, Brooklyn, residency in obstetrics and gynecology.

Capt. Russel R. Jauernig, Bellevue Hospital, New York, residency in radiology.

Capt. Walter G. Olin Jr., Patterson General Hospital, Patterson, N. J., residency in pathology.

First Lieut. Bryan Williams Jr., Massachusetts Memorial Hospital, Boston, intern training.

First Lieut. Frederick Charles Biehusen, Grace-New Haven Community Hospital, New Haven, Conn., residency in pediatrics.

First Lieut. Arthur W. Adams, Ellis Hospital, Schenectady, N. Y., internship in surgery.

First Lieut. Norman Goldstein, Lincoln Hospital, New York, residency in pediatrics.

First Lieut. Robert Franklin Hufner, Meadowbrook Hospital, Hempstead, New York, *residency in pathology.*

First Lieut. Lester D. Johnson Jr., Georgetown University Hospital, Washington, D. C., residency in obstetrics and gynecology.

First Lieut. Ralph G. Thomas, Indianapolis General Hospital, Indianapolis, residency in general surgery.

First Lieut. John S. Kelly, Cook County Hospital, Chicago, residency in general surgery.

First Lieut. John A. Norman, Children's Hospital, Denver, residency in pediatrics.

First Lieut. John N. Palmer, Provident Hospital, Chicago, residency in surgery.

First Lieut. Harry Banoff, Los Angeles County General Hospital, residency in ophthalmology.

First Lieut. Charles B. Crow Jr., Boston City Hospital, Boston, assistant resident in medicine.

First Lieut. George R. Barnes Jr., Grace-New Haven Community Hospital, New Haven, Conn., residency in pediatrics.

First Lieut. Ben D. Hall, John Gaston Hospital, Memphis, Tenn., residency in medicine.

First Lieut. Saul B. Appel, New York University–Bellevue Medical Center, New York, residency training in medicine.

First Lieut. Willis H. Thornburg, New York Post-Graduate Medical School and Hospital, New York, residency in surgery.

First Lieut. Robert A. Simenson, Worcester State Hospital, Worcester, Mass., *residency in psychiatry.*

VACANCIES IN MEDICAL SERVICE CORPS

A number of vacancies in the grades of second and first lieutenant still exist in the Army Medical Service Corps in bacteriology, biochemistry, parasitology, serology, entomology, nutrition, toxicology, industrial hygiene, industrial hygiene engineering, optometry, psychiatric social work, clinical psychology and sanitary engineering, under the provisions of Department of Army Circular 210 dated July 14, 1948. Although most of the provisions of Circular 210 were suspended as of Feb. 15, 1949, pending completion by the Department of the Army of a study of remaining requirements, applications for reserve commissions in most grades are still being accepted by the Medical, Dental, Veterinary, Nurse and Women's Medical Specialist Corps as well as by the Medical Service Corps for appointment in the grades of second and first lieutenant.

THE DARNALL EXHIBIT

The Army Medical Library, Washington, D. C., has been conducting a series of exhibits entitled "Famous Men of Army Medicine." The subject of the seventh exhibit in this series is the late Carl Rogers Darnall, whose investigations and inventions made modern water purification possible. The method which, then Major, Darnall of the U. S. Army Medical Department originated in 1910 was the introduction into water supplies of chlorine gas, a method which has since been adopted throughout the world. Safe drinking water today is so universally obtainable that few persons recognize the great significance of modern water purification in relation to public health. The pictorial part of the exhibit concerns the application of the Darnall method both in the Pacific and European Theaters of Operation in World War II. Much of the Darnall experimentation to develop this method was carried on during his period of service on the faculty of the Army Medical School in Washington, D. C. Major Darnall later attained the rank of brigadier general and was awarded the Distinguished Service Medal for outstanding service in administering the activities pertaining to medical supply during World War I.

MONTHLY MEDICAL MEETING

At the Surgeon General's regular monthly meeting of medical officers at Walter Reed Hospital, February 17, Dr. Frank Meleney of the Department of Surgery, Columbia University, New York, spoke on "Bacitracin: Indications and Limitations of Its Systemic Administration in the Treatment of Infections." After the meeting refreshments were served in the Officers' Club.

PERSONNEL

Lieut. William J. Brown Jr., M.C., formerly at Ft. Lawton, Washington, D. C., has been assigned to the staff of the Army Institute of Pathology, Washington, D. C., as tissue pathologist.

NAVY

EXAMINATIONS FOR APPOINTMENT IN MEDICAL CORPS

Examinations for the selection of candidates for appointment to the grade of lieutenant (junior grade) in the Medical Corps of the Navy will be conducted at all Naval hospitals in the continental United States during the period April 4-8, 1949.

Graduates of approved medical schools in the United States or Canada who have completed intern training in accredited hospitals or who will complete such training within four months of the date of the examination, and who are physically and otherwise qualified, may be examined for appointment. Candidates must be less than 32 years of age at the time of appointment and will be required to appear before boards of medical examiners and supervisory Naval examining boards at the Naval hospital nearest their residence to demonstrate their physical and professional qualifications. After approval by the President of the United States and confirmation by the Senate, selected candidates will be issued appointment and orders assigning them to duty in a Naval medical facility.

As a result of the authorized additional compensation of $100 a month for medical officers, a lieutenant (junior grade) in the Navy Medical Corps receives pay and allowances totaling $5,011.00 a year if married and $4,575.00 if without dependents.

Information concerning procedure of application may be obtained from the nearest Naval Officer Procurement Office or from the Bureau of Medicine and Surgery, Navy Department, Washington 25, D. C. (Attn: Code-3424).

FIRST ACTIVE DUTY

The following lieutenants (jg) in the Medical Corps Reserve have been nominated for courses of instruction under the Navy's Graduate Medical Training Program: Wayne C. Brady of Statesville, N. C., to a residency in orthopedic surgery at Columbia Hospital of Richmond County, Columbia, S. C.; Ward Cooper Jr. of Palo Alto, Calif., to instruction in ophthalmology at the Naval Hospital, Oakland, Calif.; Raymond J. Leffler of Iowa City to a residency in pathology at Robert Packer Hospital, Sayre, Pa.; Wolfram G. Locher of Chardon, Ohio, to a residency in anesthesiology at Reading Hospital, Reading, Pa., and Robert G. Trout of Columbus, Ohio, to a basic course in surgery at the University of Pennsylvania Graduate School of Medicine, Philadelphia.

POSTGRADUATE INSTRUCTION

The following Regular Navy medical officers have been nominated for postgraduate courses of instruction as indicated:

Name	Residence	Course
Dement, Donald E., Capt.	Grosse Ile., Mich.	Training in the National Laboratories, Oak Ridge, Tenn.
Hoot, Paul M., Capt.	Ponca City, Okla.	Training in the National Laboratories, Oak Ridge, Tenn.
Kwiatkowski, Peter S., Lieut. Comdr.	Binghampton, N.Y.	Training in the National Laboratories, Oak Ridge, Tenn.
Yocum, Thomas D., Lieut.	Versailles, Ky.	Children's orthopedics at the Miller Orthopedic Clinic, Charlotte, N. C.
Fahrner, Robert J., Lieut. (jg)	Joliet, Ill.	Residency in obstetrics and gynecology at the Naval Hospital, Long Beach, Calif.
Gardipee, Charles R., Jr., Lieut. (jg)	San Francisco	Residency in general practice at the Naval Hospital, Long Beach, Calif.
Lewis, Garner L., Lieut. (jg)	Kingston, N. Y.	Training in the National Laboratories, Oak Ridge, Tenn.
Park, William F., Lieut. (jg)	Baltimore	Residency in otolaryngology at the Naval Hospital, Bethesda, Md.

PERSONAL

Lieut. (jg) Robert A. Loeffler of Medford, Ore., has been transferred from an active reserve status to the Medical Corps of the Regular Navy and is on duty at the Naval Hospital, San Diego, Calif., for a course in general surgery.

PUBLIC HEALTH SERVICE

STUDY OF PUBLIC HEALTH SERVICE GRANTS AND FELLOWSHIP PROGRAMS

On the recommendation of the National Advisory Health Council, a special committee has been appointed by the Surgeon General of the Public Health Service to study the Public Health Service research and educational grants and fellowships, the cost of medical education and the effect of these grants on medical school finances and on medical education. The purpose of this study is to evaluate existing grant and fellowship programs and policies and to provide a basis for advice on the financial needs of medical education. The members of this committee are:

Dr. Lowell J. Reed, Chairman
Dr. George Baehr
Dr. Robin C. Buerki
Dr. Edward A. Doisy
Dr. E. G. Gustavson
Dr. Algo Henderson
Dr. E. E. Irons
Dr. Carlyle Jacobsen
Dr. Hugh Morgan
Dr. B. O. Raulston
Dr. James S. Simmons
Dr. Herman B. Wells

The special committee has consulted with the Committee on the Survey of Medical Education, sponsored by the Council on Medical Education and Hospitals of the American Medical Association and the Association of American Medical Colleges. While the two committees will carry out their studies independently, every effort is being made to coordinate their activities with the view of avoiding unnecessary duplication of work and reducing the demands on the officers and faculties of the medical schools.

The study by the Surgeon General's committee will be conducted through a series of regional meetings of the deans and finance officers of the medical schools and through subsequent interviews by a representative of the committee. The first regional meeting will be held in Atlanta on March 21. Meetings in other regions are being scheduled for April.

NURSES NEEDED FOR GOVERNMENT POSITIONS

The U. S. Civil Service Commission announces an examination for Public Health Nurse for vacancies in Washington, D. C., and vicinities and others in territories and possessions of the United States. No written test is required. Applicants must have completed a three year nursing course or a two year nursing course plus appropriate experience or education, and they must have had a minimum of one year's experience in public health nursing in a generalized community public health program. All applicants must be registered as professional nurses in some state or territory at the time of appointment. These positions pay from $3,727 to $4,479 a year. Details and application forms may be obtained from the U. S. Civil Service Commission, Washington 25, D. C., or from most first and second class post offices. Applications must be on file with the Commission not later than March 29, 1949.

EUROPEAN INFLUENZA CENTERS

The Influenza Information Center, National Institutes of Health, has received a list of European influenza centers from Dr. C. H. Andrewes, World Influenza Centre, London. The centers were established as part of the World Health Organization Study Program. Following is the list:

Laboratoire Central d'Hygiene, Brussels, Belgium.
State Serum Institute, 80 Amager Boulevard, Copenhagen, Denmark.
Virus Laboratory, St. Vincent's Green, Dublin, Ireland.
Institut Pasteur, Rue du Dr. Emile-Roux, Paris XV, France.
State Laboratory, Ministry of Hygiene, Athens, Greece.
Institute of Hygiene, Budapest, Hungary.
University Institute for Experimental Pathology, Keldur, Iceland.
Instituto Sieroterapico Italiano, Naples, Italy.
University Laboratory, Oslo, Norway.
Swedish State Bacteriological Laboratory, Box 764, Stockholm 1, Sweden.
Institut [illegible] 'efik Saydam," Ankara, Turkey.
Federal [illegible] Belgrade, Jugoslavia.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Multimillion Dollar Medical Building Program.—The regents of the University of California have approved the multimillion dollar building program to erect on the Los Angeles campus a complete medical research center. Scheduled for immediate construction is the $15,500,000 medical school and teaching hospital which will form the nucleus of the project on 35 acres at the south end of the Los Angeles campus and 34 acres nearby, recently deeded to the university by the United States government. The central structure will combine a medical school and a 500 bed teaching hospital, as well as provision for 114 additional student health service beds. The radiology department and surgical operating rooms will be built underground, representing an innovation in the construction of a modern hospital. Also unprecedented is the interior planning whereby classrooms and laboratories devoted to a particular medical subject will occupy the opposite wing on the same story as the corresponding ward in the training hospital, thus permitting students to examine appropriate patients without leaving the floor. Architecturally, the hospital-school will be flexible, with a modular system in 5 foot units providing infinite variety of floor plan arrangements and a peripheral piping system that makes possible the immediate conversion of any room into a fully equipped laboratory with the addition merely of fixtures. The exterior of the building has been designed to allow expansion in nine horizontal directions, and vertically to the Los Angeles height limit. Other buildings to be erected include a student health service, outpatients' clinic, interns' and nurses' quarters and library. Plans call for the addition of an atomic energy medical research unit, buildings devoted to mental hygiene and aviation medicine, cancer and cardiovascular research units. According to Dr. Stafford Warren, dean of the University's Los Angeles Medical School, the new center will represent "a full scale effort to coordinate the basic sciences and clinical sciences within the walls of a single university." Various academic departments of the university will be closely allied to related departments in the new center, with undergraduates in other departments sharing libraries, laboratories and even some classrooms with medical students.

COLORADO

Reporting of Animal Diseases.—The state department of public health has instituted a program of reporting animal diseases which are transmissible to human beings. Each veterinarian furnishes reports on forms designed for this purpose. Additional information may be obtained from Martin D. Baum, D.V.M., director, Veterinary Public Health Services, State Office Building, Denver 2.

Course in Problems of Newborn Infants.—A graduate course on The Problems of Newborn Infants, to be sponsored by the University of Colorado School of Medicine, Denver, and the Colorado State Division of Public Health, will be given at the University of Colorado Medical Center, Denver, April 7-9. Lectures, panel discussions and demonstrations will be given on obstetric aspects of prematurity, resuscitation, nutrition, isoimmunization, psychologic problems in prematurely born infants, community planning, infections and interpretation of laboratory findings in the newborn. The guest lecturer is Dr. Herbert C. Miller Jr., professor of pediatrics, University of Kansas School of Medicine, Lawrence-Kansas City. The course is open to graduates of medical schools approved by the American Medical Association. The registration fee is $5 and the tuition is $10. Interns and residents are invited to attend without charge. Inquiries should be directed to John Lichty, M.D., director of the course.

CONNECTICUT

State Cancer Conference.—The second annual State Cancer Conference of the Connecticut State Medical Society and the Connecticut Cancer Society will be held March 23 at the Hartford Club, Hartford. Visiting physician speakers include:

Oliver Cope, Boston, Radioactive Isotopes in Diagnosis and Treatment of Cancer.
Richard H. Sweet, Boston, Cancer of the Esophagus and Stomach.
William Dameshek, Boston, Leukemias.

Hospital for Alcoholism.—A publicly supported hospital devoted solely to the study, treatment and rehabilitation of alcoholic addicts of the state is to be erected in Hartford within the next year. Funds totaling $551,943 have been made available by the state for the two story structure which will have accommodations for 50 bed patients and an outpatient department to treat about 400 ambulatory patients annually. It will be directed and operated by the Connecticut Commission on Alcoholism. Treatment will be entirely professional in character with full medical, psychiatric, nursing and social work service available. It will serve as a pilot and demonstration center through which various therapeutic technics can be evaluated. It will undertake the study and treatment of the voluntary type of alcoholic addict who seeks assistance and the patient with a long history of court appearances for chronic alcoholism.

DISTRICT OF COLUMBIA

Dr. James G. Cumming Retires.—Dr. James Gordon Cumming will retire as director, Bureau of Preventable Diseases, of the District of Columbia Health Department after twenty-four years of service. After graduation from the University of Michigan in 1903, Dr. Cumming taught at the medical school until 1914 and was director of the university's Pasteur Institute. From 1914 to 1918 he served as director of the Bureau of Communicable Diseases, California State Department of Health, and was lecturer in preventive medicine at the University of California Medical School, Berkeley-San Francisco. For World War I service in connection with studies of epidemic influenza and pneumonia Dr. Cumming was awarded the Distinguished Service Medal. He was assigned to the Office of the Surgeon General of the Army in Washington to assist in the preparation of the medical and surgical history of World War I. Dr. Cumming plans to retire to his farm in Indian Head, Md.

GEORGIA

School of Medical Illustration.—The first school of medical illustration in Southeastern United States has opened at the University of Georgia School of Medicine, Augusta. Work is available for medical students and for medical art students who wish to take advanced work in a particular branch and to scientific illustrators. A regular four year course for beginners is also available. A limited number of applicants are selected each year. Applications for admission may be addressed to the Registrar, University of Georgia School of Medicine, Augusta.

ILLINOIS

Appointments to Crippled Children's Committee.—Nine new members, each to serve two years, have been appointed to the Professional Advisory Committee of the Division of Services for Crippled Children by the University of Illinois Board of Trustees. Five appointees from Chicago are: Mr. Ray E. Brown, superintendent of the University of Chicago Clinics; Drs. Francis J. Gerty and H. Worley Kendell, University of Illinois College of Medicine; Dr. Meyer A. Perlstein, and Miss Jane Bull, executive director of the Illinois Commission for Handicapped Children. Others are Mr. Isaac Jolles, State Department of Public Instruction, Springfield; Drs. Stuart Broadwell Jr., Springfield otologist; Frederick H. Maurer, Peoria pediatrician, and Harold Westlake, Ph.D., Northwestern University.

Chicago

Davis Lecture on Medical History.—Paul M. Angle, LL.D,. director of the Chicago Historical Society, will give the sixth annual D. J. Davis Lecture on Medical History March 30 in Room 221 of the University of Illinois College of Medicine. His subject will be "The Hardy Pioneer: How He Lived in the Early Middle West." This lecture series was established by friends and associates of Dr. Davis on his retirement as dean of the College of Medicine in 1943.

Appoint Assistant Dean.—Dr. Milan V. Novak, a member of the faculty of the College of Medicine since 1940, has been appointed assistant dean of the Graduate College for the University of Illinois' Chicago Professional Colleges. He will continue to serve also as head of the department of bacteriology. He will be in charge of administrative duties for the Graduate College on the campus of the Chicago Professional Colleges. The new position has been created by the university because of the increase in enrolment of graduate students, together with the need for expediting routine connected with this work. The number of students enrolled in graduate work on the Chicago campus has tripled since the close of the war.

Cleft Palate Training Center.—Clinical training in the care of children with cleft palate has been established at the University of Illinois. A special clinic for research, diagnosis and follow-up of children with cleft lips and palates is being set up in the university's Dentistry-Medicine-Pharmacy building. Primary financial support will come from the Children's Bureau of the Federal Security Agency, which has granted $175,000 for a period of four to five years. Herbert K. Baker, Ph.D., professor of audiology and director of speech and hearing rehabilitation in the college of medicine, has been appointed director. The new program will make possible long term follow-up and research in the value of various aspects of the care of cleft palate children.

Welfare Council Asks for Additional Funds.—The Health Division of the Welfare Council of Metropolitan Chicago has appealed to the governor and the legislature to appropriate additional state funds for adequate health protection for the people of Illinois. It was emphasized that this can only be attained through local health departments. The state health department is not equipped to do the thorough job necessary, it was said. The Illinois Department of Public Health has available annually about $4,700,000, of which about $2,000,000 is from federal sources and the balance from state funds. The Chicago Board of Health receives no state funds, according to the council, but has been allotted $543,160 in federal funds through the state department to be used for mental hygiene and tuberculosis and venereal disease control. The Cook County Health Department is receiving $118,657 from the state, and the Evanston Health Department is receiving $34,236. Among deficiencies in health protection for the city, the council listed virtually no health services for nearly 750,000 school children in the city; no health supervision for preschool age children in at least 80 per cent of the city; the need of 100 additional sanitary inspectors; the urgent need of 250 public health nurses, and virtually no public health programs to conserve health through health education, mental hygiene and health services for the aged. California and New York, according to the council, provide grants-in-aid for local health work on a much more liberal basis than Illinois. California distributes $3,000,000 annually and New York provides at least 50 per cent of the funds for local public health work, and in poorer communities up to 75 per cent.

IOWA

Iowa Heart Association.—A group of Iowa physicians recently organized the Iowa Heart Association as an affiliate of the American Heart Association. Dr. Herbert W. Rathe, Waverly, was named president and Dr. Lewis E. January, secretary. Both are faculty members of the State University of Iowa College of Medicine, Iowa City.

State Medical Meeting.—The Iowa State Medical Society will hold its annual session at Hotel Fort Des Moines in Des Moines April 18-21, under the presidency of Dr. William E. Ash, Council Bluffs. Guest speakers at the general sessions include:

Harry H. Gordon, Denver, Problems in the Diagnosis and Treatment of Rheumatic Fever.
Richard B. Cattell, Boston, Inflammatory Lesions of the Small and Large Bowel.
Arthur L. Conrad, J.D., Chicago, Social, Moral and Economic Implications of Political Medicine.
Lawrence R. Boies, Minneapolis, Headache and Neuralgia of Nasal Origin.
Walter H. Nadler, Chicago, Sarcoidosis.
Louis A. Buie, Rochester, Minn., Ulcerative Colitis.
Walter P. Blount, Milwaukee, Fractures in Children Are Different.
Forrester Raine, Milwaukee, Diagnostic Difficulties in Carcinoma of the Lungs.
William F. Mengert, Dallas, Tex., Pelvic Pain in Women.
William A. Boice, Chicago, Indications for Cesarean Section.
Abe B. Baker, Minneapolis, Treatment of Epilepsy by the General Practitioner.
Austin Smith, Secretary, Council on Pharmacy and Chemistry, American Medical Association, Chicago, Food and Drug Act.
Arthur M. Olsen, Rochester, Minn., Differential Diagnosis of the More Common Pulmonary Conditions.

Section meetings on surgery, medicine, pediatrics, obstetrics and eye, ear, nose and throat will be held in the afternoons.

KANSAS

Course in Ophthalmology and Otolaryngology.—The University of Kansas in cooperation with the Kansas Society of Ophthalmology and Otolaryngology, the Kansas Medical Society and the state board of health will present a graduate course in ophthalmology and otolaryngology at the university medical center in Kansas City April 11-15. It is open to any doctor of medicine in the state and adjacent states. Among the instructors will be Drs. Stuart C. Cullen, Iowa City; Frank S. Forman Jr., Kansas City, Mo.; Arthur C. Jones, Boise, Idaho; Albert D. Ruedemann, Detroit, and Benjamin H. Shuster, Philadelphia. A fee of $30 is charged for the full course, $20 for the first three days in otolaryngology only, or for the last two $15. Complimentary enrolment is granted to interns and residents on identification by their hospital superintendents. Registration should be made with the Extension Program in Medicine, University of Kansas Medical Center, Kansas City 3, Kansas.

KENTUCKY

Sigma Xi Lecture.—Dr. Arnold L. Gesell, Yale University, New Haven, Conn., will deliver a lecture, to which the medical profession is invited, on "Human Infancy and the Ontogenesis of Behavior" at Halleck Hall, Louisville, March 22 at 8 p. m.

Personals.—Dr. John H. Blackburn of Bowling Green, who has completed fifty years as a medical practitioner, was guest of honor at a dinner sponsored by the Warren-Edmonson County Medical Society. The dinner was attended by sixty local physicians as well as by doctors from other parts of the state.——Dr. Annie S. Veech is, at her request, resigning as director of the Louisville-Jefferson County Board of Health and will act as associate director and consultant. From 1922 to 1937 Dr. Veech was on the staff of the Kentucky State Department of Health. She organized the first maternal and child health program in the state health department. Dr. Veech was born in Louisville and graduated from Woman's Medical College in Philadelphia.

MASSACHUSETTS

Hospital News.—Tor Court, the 155 acre Salisbury place, was transferred early December to Hillcrest Hospital, Pittsfield. It is the twenty-first Berkshire estate that has passed to an institutional corporation or state ownership.

Medical Alumni Meeting.—The Tufts Medical Alumni Association will hold its annual dinner meeting on April 6 at the Somerset Hotel, Boston. The guest speaker is to be Dr. Leonard A. Scheele, Surgeon General of the U. S. Public Health Service. Other speakers include Leonard Carmichael, LL.D., president of Tufts College, and Dr. Jacob L. Lochner Jr., Albany, N. Y., secretary, New York State Board of Registration in Medicine. Dr. Roy J. Heffernan will preside. The 25 year class will hold its reunion also on this date.

MICHIGAN

Cancer Day in Flint.—The Genesee County Medical Society is sponsoring a state wide conference at its fourth Annual Cancer Day program at Hurley Hospital, Flint, April 13 from 9:30 a. m. to 5 p. m. The program is as follows:

Arthur P. Stout, New York, Role of the Surgical Pathologist in Respect to the Cancer Problem.
Harold W. Dargeon, New York, Cancer in Children.
Thomas E. Jones, Cleveland, Cancer of the Lower Bowel—Present Status of Management.
Norman F. Miller, Ann Arbor, Management of Uterine Cancer.
E. W. Alton Ochsner, New Orleans, Basic Principles in Cancer Management.

NEW JERSEY

Director of Bureau of Laboratories.—The third of six bureau directors to be selected under the reorganization of the State Department of Health is Dr. A. J. Casselman, Camden, who will be director of the Bureau of Laboratories. Dr. Casselman has been associated with the Bureau of Venereal Disease Control since 1919, and has been chief of the division for the last two years. He will plan, organize and direct a central laboratory equipped to perform all laboratory services required by the New Jersey State Department of Health. He is a graduate of the University of Pennsylvania School of Medicine, Philadelphia, 1911.

NEW YORK

Courses in Surgery and Medicine.—Opportunities for postgraduate education in medicine and surgery are available at the Clifton Springs Sanitarium and Clinic at Clifton Springs. Physicians practicing within the region are eligible. The course in medicine, which runs for a period of one to four months, is under the direction of Dr. Bernard A. Watson, director of the Division of Medicine. All fields except brain surgery are available in the course in surgery under the direction of Dr. William C. Eikner, chief of Surgery Service.

Survey of Tuberculosis Hospitalization.—The New York Tuberculosis and Health Association has published a study based on the average year, 1947, when 2,373 tuberculosis patients left New York City hospitals against medical advice and before their disease had been arrested. Nearly half of the tuberculosis patients who "sign out" have open, infectious disease. The cost of caring for a tuberculous patient is estimated at $7.50 per day per patient, the amount paid by the city to private hospitals for such care. On this basis the "sign out" group alone, each patient averaging 365 hospital days, costs $6,531,682.50 per year.

The cost of public relief for the group and their dependents amounted to $2,134,800. Three city institutions and one in New Jersey were the subject of intensive study. There are twenty-one tuberculosis hospitals in the metropolitan area.

Clinic for Corneal Disorders.—A clinic for diagnosis and treatment of corneal disorders has been established at the Manhattan Eye, Ear and Throat Hospital, 210 East 64th Street, New York, as a cooperative undertaking sponsored by the Eye Bank for Sight Restoration and the hospital. The clinic meets at 9:30 a. m. Wednesday mornings. Patients are referred to this clinic from the other eye services of the Manhattan Eye, Ear and Throat Hospital, from other physicians, from public health organizations and from some of the national and state societies for the prevention of blindness. Most of the patients are charity cases and a great portion of the burden of financing is carried by the eye bank.

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Basil R. Beltran ⊕ Philadelphia; born in New Orleans in 1889; Medico-Chirurgical College of Philadelphia, 1912; associate professor of surgery at the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; received the Palme-Academic decoration of the Ministry of National Education of France for services rendered to the French during World War I and to the French in Philadelphia; served as medical director and chief surgeon of the Eastern State Penitentiary, chief and chairman of the staff of the Nazareth Hospital; affiliated with the Misericordia and Fitzgerald Mercy hospitals; died January 19, aged 59, of hypertension and cardiac failure.

Louis Rudolph ⊕ Chicago; born in Racine, Wis., in 1886; Northwestern University Medical School, Chicago, 1911; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; member of the Central Association of Obstetricians and Gynecologists and Chicago Gynecological Society; fellow of the American College of Surgeons; served on the faculty of Loyola University School of Medicine; professor of obstetrics at Cook County Graduate School of Medicine; affiliated with Mount Sinai and Cook County hospitals; died in Wesley Memorial Hospital January 29, aged 63, of acute hepatitis and acute pancreatitis.

Kasimir Ambrose Zurawski, Chicago; born in Poland Dec. 20, 1871; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1899; in 1913 member of the House of Delegates of the American Medical Association; at one time on the faculty of his alma mater; spent several years in Poland improving health conditions in that country and served as minister of health under the Pilsudzki government; decorated by the Polish government and awarded an honorary degree by the University of Warsaw; died in St. Luke's Hospital January 24, aged 77.

Paul Appleton ⊕ Providence, R. I.; Harvard Medical School, Boston, 1915; specialist certified by the American Board of Obstetrics and Gynecology; member of the New England Obstetrical and Gynecological Society; fellow of the American College of Surgeons; served during World War I; on the staff of the Providence Lying-in Hospital; died December 24, aged 61, of myocardial infarction.

Joseph Henry Cahoon, Middletown, Del.; University of Maryland School of Medicine, Baltimore, 1903; died in the Delaware Hospital December 12, aged 83, of arteriosclerosis.

Hanna L. Caldwell, Miami, Fla.; Bennett Medical College, Chicago, 1904; died December 6, aged 79.

Miles Dudley Chisholm ⊕ Westfield, Mass.; University College of Medicine, Richmond, 1900; fellow of the American College of Surgeons; served during World War I; formerly city physician; served on the staff of the Noble Hospital; died December 19, aged 71, of coronary disease.

Herman Vascoe Collins, Monroe, La.; Atlanta School of Medicine, 1911; member of the American Medical Association; died December 2, aged 66, of carcinoma of the small intestine.

Perry E. Cotton ⊕ Elwood, Ind.; Indiana University School of Medicine, Indianapolis, 1934; died November 29, aged 40, of injuries received when the automobile in which he was driving was struck by a train.

Charles Wellington Craik, Venice, Calif.; University Medical College of Kansas City, 1900; served during World War I; died in the Veterans Administration Center, Los Angeles, in December, aged 76.

Hugh G. Dallas, Jefferson City, Mo.; St. Louis College of Physicians and Surgeons, 1908; died in St. Mary's Hospital December 8, aged 65.

Emory Francis Davis, Springfield, Ohio; Medical College of Ohio, Cincinnati, 1897; member of the American Medical Association; died December 25, aged 78, of pulmonary embolism and carcinoma of the cecum.

John Diven ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1912; died in Wilmington, Del., December 16, aged 65.

Monica Donovan ⊕ San Francisco; Stanford University School of Medicine, San Francisco, 1917; member of the American Roentgen Ray Society and of the Radiological Society of North America; formerly on the faculty of her alma mater; medical advisor to the San Francisco College for Women; affiliated with St. Mary's Hospital; died December 29, aged 57.

Theodore Jordan Drisdel, Greenfield, Mo.; St. Louis University School of Medicine, 1905; served during World War I; died December 7, aged 68, of heart disease.

Fred Conrad Enander ⊕ New Britain, Conn.; Tufts College Medical School, Boston, 1922; died December 21, aged 51.

Julius Ernest Fleischner ⊕ Chicago; University of Illinois College of Medicine, Chicago, 1923; served during World War I; affiliated with the Loretto and Garfield Park Community hospitals; died in River Forest, Ill., December 26, aged 51, of arteriosclerotic heart disease.

Gustav Adolphus Floreth ⊕ Mount Olive, Ill.; Marion-Sims-Beaumont Medical College, St. Louis, 1903; served overseas during World War I; for many years member of the board of education; died December 23, aged 71, of coronary thrombosis.

Gilbert E. Frank, Harbor Springs, Mich.; Detroit College of Medicine, 1901; member of the American Medical Association; died in St. Johns, December 20, aged 69, of lymphosarcoma.

Christopher C. Gaard ⊕ Bremerton, Wash.; St. Louis University School of Medicine, 1920; died in the Harrison Memorial Hospital December 16, aged 60, of carcinomatosis.

Parker Blair Gamble, Detroit; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1913; member of the American Medical Association; served on the staff of Parkside Hospital; died December 27, aged 62, of coronary thrombosis, hypertension and arteriosclerosis.

Leroy Clarence Green, Ashville, N. Y.; University of Buffalo School of Medicine, 1895; member of the American Medical Association; since 1919 health officer of the town of North Harmony; died December 29, aged 77, of paralysis agitans.

Francis Preston Gudgell, Owingsville, Ky.; University of Louisville Medical Department, 1882; member of the American Medical Association; died in the Good Samaritan Hospital, Lexington, December 25, aged 88.

Erwin Kroll Gutmann, Jersey City, N. J.; Cornell University Medical College, New York, 1929; member of the American Medical Association; served overseas during World War II; died December 21, aged 44, of coronary thrombosis.

Tryggve Alexander Hagerup, Dodgeville, Wis.; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, 1920; member of the American Medical Association; past president of the Iowa County Medical Society; died December 17, aged 55, of acute atrophy of the liver.

Robert Clarence Hannigen, Amesbury, Mass.; Medical School of Maine, Portland, 1901; member of the American Medical Association; served during World War I; died in the Amesbury Hospital December 16, aged 71, of cerebral thrombosis.

Hugh Henry Hanrahan ⊕ Rutland, Vt.; University of Vermont College of Medicine, Burlington, 1915; died December 14, aged 61, of myocarditis.

Hiram Abiff Haskell, Windsor, Calif.; Northwestern University Medical School, Chicago, 1899; served with the British Army during World War I; died December 25, aged 86, of injuries received when struck by an automobile.

Carl John Hawley ⊕ Burbank, Calif.; University of Southern California School of Medicine, Los Angeles, 1935; served during World War II; died in the Veterans Administration Hospital, Van Nuys, December 26, aged 44, of hypertension and cerebral hemorrhage.

Ralph H. Herbert, La Crosse, Wis.; Bennett Medical College, Chicago, 1900; died in La Crosse Hospital, December 24, aged 70, of cerebral hemorrhage.

Frank McElroy Huntoon, Syracuse, N. Y.; Cornell University Medical College, New York, 1903; member of the Society of American Bacteriologists; formerly on the faculty of his alma mater; at one time senior bacteriologist and medical director, H. K. Mulford Company in Glen Olden, Pa.; served during World War I; died in the Onondaga Sanatarium, December 21, aged 67, of pulmonary tuberculosis.

Alfred Edward Jones, Chicago; University of Illinois College of Medicine, Chicago, 1915; member of the American Urological Association; fellow of the American College of Surgeons; specialist certified by the American Board of Urology; formerly on the faculty of Loyola University School of Medicine; served during World War II; affiliated with Michael Reese Hospital; died November 10, aged 58, of chronic myocarditis.

Weston William Lasher, Saxonburg, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1893; member of the American Association of Industrial Physicians and Surgeons; died in the Allegheny Valley Hospital, Tarentum, December 12, aged 77, of leukemia.

Leonard Frank Lauf, Columbus, Ohio; Jefferson Medical College of Philadelphia, 1907; member of the American Medical Association; died December 16, aged 65, of hypertension.

Hugh Francis Lena ⊕ New London, Conn.; Johns Hopkins University School of Medicine, Baltimore, 1916; past president of the New London County Medical Society; fellow of the American College of Surgeons; served during World War I; owner of Dr. Lena's Surgical Hospital; died November 8, aged 60, of coronary occlusion.

Roy Chester Lowe, Neenah, Wis.; the Hahnemann Medical College and Hospital, Chicago, 1906; member of the American Medical Association; past president of the Winnebago County Medical Society; died in the Theda Clark Hospital December 16, aged 65.

William Douglas Macon, Charlottesville, Va.; University of Virginia Department of Medicine, Charlottesville, 1897; member of the American Medical Association; resigned in 1924 as professor of obstetrics at his alma mater, where he had been clinical instructor in anesthesia in 1904 and in the following year also in the practice of medicine; served as health officer for the city of Charlottesville; died December 30, aged 79, of carcinoma.

Fred E. Murphy, Traverse City, Mich.; Detroit College of Medicine, 1906; died in the University Hospital, Ann Arbor, December 1, aged 71, of carcinoma of the pancreas with metastases.

Clyde Clark Neese ⊕ Wilmington, Del.; Temple University School of Medicine, Philadelphia, 1917; member of American Proctological Society; served during World War I; died in the Wilmington General Hospital December 5, aged 60, of congestive heart disease.

David Stanislaus O'Donnell, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia 1905; served during World War I; affiliated with St. Joseph's Hospital, where he died December 23, aged 68.

John Joseph O'Loughlin, Howard Beach, N. Y.; Fordham University School of Medicine, New York, 1918; served during World War I; member of the American Medical Association; died December 14, aged 55, of cerebral hemorrhage.

William Robert Orr, Helena, Ark.; Tulane University of Louisiana School of Medicine, New Orleans, 1908; died in Helena Hospital December 1, aged 65, of injuries received in an explosion on a river cruiser.

Michelangelo Pacella, Waukegan, Ill.; Chicago Medical School, 1922; died in St. Theresa Hospital December 11, aged 78, of chronic nephritis and pneumonia.

Lovick Edward Peacock, West Blocton, Ala.; Medical College of Alabama, Mobile, 1892; member of the American Medical Association; died December 23, aged 78, of bronchogenic carcinoma.

Edward August Peterson, Vallejo, Calif.; Medical Department of the University of California, San Francisco, 1907; served overseas during World War I; formerly on the staff of Vallejo General Hospital; died in Napa, December 9, aged 67, of heart disease.

Austin Flint Philpott, Fort Madison, Iowa; St. Louis College of Physicians and Surgeons, 1903; died in the Sacred Heart Hospital December 20, aged 67, of chronic nephritis.

Theodore A. Pierson, Hopewell, N. J.; College of Physicians and Surgeons, Baltimore, 1894; member of the American Medical Association; served three terms as mayor of Hopewell and as president of the board of education; director of the Hopewell National Bank; died December 24, aged 78, of gallbladder disease.

Pierre Celestin Pilon, Minneapolis; School of Medicine and Surgery of Montreal, Canada, 1886; served during World I; formerly mayor of Paynesville and coroner of Stearns County; died in St. Mary's Hospital December 16, aged 84.

Lewis R. Polk ⊕ Memphis, Tenn.; Memphis Hospital Medical College, 1909; died December 18, aged 63, of cerebral hemorrhage and hypertension.

Lorne McDonnell Ryan, Madison, Conn.; McGill University Faculty of Medicine, Montreal, Canada, 1905; member of the American Medical Association and of the Medical Society of the State of New York; fellow of the American College of Surgeons; affiliated with St. Peter's Hospital in Brooklyn; consulting surgeon to St. Anthony's Hospital in Woodhaven, N. Y.; died December 30, aged 67, of coronary thrombosis.

Raymond St. Clair, Sonoma, Calif.; College of Physicians and Surgeons, Keokuk, Iowa, 1896; past president of the Nevada State Medical Association; died November 30, aged 78.

Michael Abdallah Saleeby, Dillon, S. C.; Medical College of the State of South Carolina, Charleston, 1917; died in the McLeod Infirmary, Florence, December 29, aged 55, of coronary thrombosis.

Walter Howard Sanford, New York; Albany (N. Y.) Medical College, 1899; recently retired as pathologist at the Manhattan State Hospital; died December 13, aged 70, of angina pectoris.

Preston Pope Satterwhite, Great Neck, N. Y.; Bellevue Hospital Medical College, New York, 1898; died in the Harkness Pavilion, New York, December 27, aged 80.

Abe Lewis Scheff, Birmingham, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1916; served during World Wars I and II; formerly passed assistant surgeon in the U. S. Public Health Service, reserves; at one time director of the Santa Cruz (Ariz.) Health Service; affiliated with the Veterans Administration; died December 17, aged 54, of coronary thrombosis.

Harry M. Schuffell ⊕ Canton, Ohio; Western Reserve University Medical Department, Cleveland, 1893; fellow of the American College of Surgeons; specialist certified by the American Board of Surgery; consulting surgeon at the Mercy Hospital, where he was chief of staff for many years; on the medical board of the Aultman Hospital; died in Orlando, Fla., December 22, aged 82, of arteriosclerotic heart disease.

Mosé Scuccimarra, Peekskill, N. Y.; Fordham University School of Medicine, New York, 1919; member of the American Medical Association; examining physician for the Selective Service Board during World War II; died in the Memorial Hospital, New York, December 26, aged 65.

Zebidee Lafayett Shipley, Cookeville, Tenn.; Chattanooga Medical College, 1902; member of the American Medical Association; died November 14, aged 75, of cerebral thrombosis.

James H. Shipper, Martinsburg, W. Va.; Baltimore University School of Medicine, 1897; at one time member of the state board of health and city and county health officer; affiliated with the City Hospital and the King's Daughters' Hospital, where he died December 27, aged 84, of paralysis.

James Edward Smith ⊕ Rolla, Mo.; Tulane University of Louisiana School of Medicine, New Orleans, 1912; formerly associated with the U. S. Public Health Service; served as medical officer in charge of the U. S. Trachoma Hospital in Knoxville, Tenn., and the Missouri Trachoma Hospital in Rolla; died December 1, aged 60.

Don Carlos Stansberry, Hastings, Neb.; College Physicians and Surgeons, Keokuk, Iowa, 1890; died December 25, aged 87.

Samuel Cecil Stanton ⊕ Chicago; Northwestern University Medical School, Chicago, 1892; an Affiliate Fellow of the American Medical Association; served during the Spanish-American War and World War I; formerly consulting medical director of the Federal Reserve Life Insurance Company and medical director of the Farmers National Life Insurance Company of America; died January 26, aged 92, of cerebral thrombosis and diabetes mellitus.

Jacob Erhard Steimen, Boston; College of Physicians and Surgeons, Boston, 1907; died November 15, aged 76, of coronary occlusion.

David Thomson ⊕ Burbank, Calif.; Rush Medical College, Chicago, 1914; affiliated with the Physicians and Surgeons Hospital in Glendale; died recently, aged 65, of coronary occlusion.

Sara Elise Wise, Los Angeles; Hahnemann Hospital College of San Francisco, 1893; College of Physicians and Surgeons, Boston, 1894; died in December, aged 83.

Foreign Letters

PARIS

(From a Special Correspondent)

Feb. 5, 1949.

Research in French Universities

ANTIHISTAMINES

B. N. Halpern, who studied the first antihistamine substance used therapeutically (antergan® [dimethylamino-ethyl benzylaniline]) is still actively working on this subject. With his collaborator, Reber, he has just discovered a phenomenon of which the practical consequences have not yet been appreciated. The edema of local infection, provoked in the body of an animal by subcutaneous injection of Salmonella typhimurium or of Staphylococcus, is inhibited by certain antihistamines such as "phenergan." There is a remarkable contrast between such animals treated or not treated by the antihistamine substance: (*a*) in animals infected with subcutaneous injection of the aforementioned germs, but without "phenergan," no deaths occurred; (*b*) in 80 per cent of animals infected in the same conditions and treated with "phenergan" complications developed, septicemia and visceral abscesses, which terminated in death. It is assumed that these complications occurred because the antihistamine in preventing local edema thus destroyed a natural barrier to the diffusion of the infection through the bodies of the experimental animals. The important question—because of these results—is whether antihistamine substances are contraindicated during the development of local infections in man.

LEUKEMIA

Leukemia is being made the subject of vigorous active research. The cytologic studies undertaken particularly (among others) by Bessis and Dreyfus (Bessis, M.: Cytologic sanguine normale et pathologique, Paris, Mason & Cie., 1948; Bessis, M., and Dreyfus, B.: *Semaine d. hôp. Paris* 24:1739, 1948) have focused attention on two fundamental characteristics of the leukemic cells: (*a*) the phenomena of arrest of cellular maturation, and (*b*) the sudden appearance of more and more young forms in the developmental course of the disease; these characteristics are common to both cells of leukemia and sarcomatous cells. From a therapeutic point of view, the "exsanguinotransfusions" (Bernard, J., and Bessis, M.: *Bull. et mém. Soc. méd. Paris* 64:14, 1948) as well as large and repeated transfusions (Vallery-Radot; Hamburger, J.; Milliez, P.; Domart, A.; Dreyfus, B., and Barbizet, J.: *Semaine d. hôp. Paris* 24:1979, 1948) are capable of causing remissions of great theoretic interest, for they suggest the existence of antileukemic elements in the blood of normal persons.

ARTERITIS

The treatment of arteritis of the lower limbs by the intra-arterial injections of oxygen is being made the object of research by Lemaire, Loeper and Housset (Lemaire, A.; Loeper, J., and Housset, E., in Journées Therapeutiques de 1948, to be published). These workers administered 70 to 100 cc. of oxygen at each sitting under a pressure represented by the midpoint between the maximum and minimum arterial pressures. The treatment must be used exclusively for the lower limbs. The functional results, represented by a lessening or disappearance of intermittent claudication, appear generally good. The relieving of pain on walking, standing, etc., is of longer duration than that obtained by the traditional methods of treatment.

THE NETHERLANDS

(From Our Regular Correspondent)

AMSTERDAM, Feb. 21, 1949.

Rubella Teamwork in Holland

Shortly after the war, in a scientific meeting sponsored by the *Nederlandsch Tijdschrift voor Geneeskunde*, Professor van Gilse, otologist in the University of Leyden, spoke about rubella and congenital anomalies.

During the war foreign literature was extremely rare in Holland, so that it was not until after the liberation that a copy of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION containing an article by Albaugh (Nov. 10, 1945, p. 719) brought insight into the combination of anomalies of a patient seen by the ophthalmologist Professor van der Hoeve and Professor van Gilse: cataract of the lens in one eye, pigment anomalies in the retina of the other eye, total deafness, anomaly of the heart and mental deficiency.

Soon after this first experience and well informed meanwhile by the literature that had appeared since the first publications of Gregg (1941, 1942) a working group started studying the problem in the Netherlands. Many data were collected by the inquiries of Miss E. Kamerbeek, school physician (Rotterdam), in the five Netherland institutions for the deaf and dumb and afterward among specialists all over the country.

Till now, Professor van Gilse's team has studied in Holland 124 cases of congenital anomalies in children whose mothers suffered from a rubella infection during the first months of pregnancy; 52 patients were registered by ophthalmologists (41 of them were operated on for cataract by Professor Weve, Utrecht), and 34 were found in the schools for deaf and dumb.

The team gave attention to the many sides of the problem. The virus work was done under the auspices of the Institute of Preventive Medicine at Leyden (Prof. J. P. Bijl and Prof. J. D. Verlinde). Attempts to obtain the virus have not been successful, and the infection of monkeys also failed.

Hildernisse and Verlinde without success repeated the work of Steinmaurer (Vienna), who believes that he has followed the development of the virus in the body by means of the electron microscope. They confirmed the specific phenomenon of the intracutaneous injection of convalescent serum during the incubation period: no exanthem occurred on the spot of the injection.

In accordance with Möschlin (Zürich), great value was attached to the presence of "plasma cells" in the blood. The hematologist S. J. de Vries (Amsterdam), and also Rietra (Amsterdam), called attention to the fact that there is no common opinion on the significance of the "plasma cells" or "pathologic lymphocytes." However, the impression of the members of the research team is that one does well to give adequate importance to the results of the blood examination along with other criteria. These pathologic blood elements occur in increasing numbers during the first days after the eruption of the exanthem. In 1 case of a tonsillectomy on the day when rubella appeared, the pathologist Miss van Beek (Leyden) found a layer of plasma cells under the epithelium of the tonsils.

Administration of convalescent serum or specific globulin was stated to be the only prophylaxis today, besides promoting rubella in as many young girls as possible. In this country the induced abortion is mostly rejected for ethical-religious as well as for practical reasons: The 100 per cent anomalies in case of rubella in the first two months of pregnancy are not as absolutely certain as was stated in the first Australian publications. One does not know to what extent the anomalies will appear. Cataract may be operated on with success. For deaf children possibilities exist of making suffering bearable.

Attempts to infect adults in order to obtain serum have failed. On the other hand, the State Institute, the Central Blood Transfusion Service of the Red Cross, the Health Services of Amsterdam and Rotterdam and many provincial centers are cooperating in the gathering of convalescent serum. Appeals to the general practitioners are also regularly made in the medical periodicals. In all the cases of pregnant women who in the first months had been likely to be infected with rubella and had been given injections during the supposed incubation period, the disease did not appear; the children born were healthy. Cases in which the convalescent serum was given in the beginning of the disease have not been recorded.

ITALY

(From Our Regular Correspondent)

FLORENCE, Jan. 25, 1949.

National Surgical Association

The fiftieth Congress of the Italian National Surgical Association was held in Bologna last October, contemporaneously with the Congress of Internal Medicine. The first subject, "Visceral Pain," was reported on in a previous letter. The second subject was "Surgery of the Vagus." The speaker, Professor Pieri, Rome, discussed the clinical indications of vagotomy based on observations in 151 patients operated on; vagotomy was performed on 142 patients and resection of the branches of the vagus on 9 patients. Good results were obtained with vagotomy in neuralgia of the vagus, in bronchial asthma and in gastric neurosis. Tuberculous laryngitis provided good indications for resection of the superior laryngeal nerve, but this method is now surpassed by the treatment with streptomycin and aerosols. Results were not satisfactory in toxic diffuse goiter, cardiospasm and cancer of the esophagus.

In 1927 Professor Pieri suggested vagotomy as a method of treatment for peptic ulcer, a suggestion based on the belief that the process of autodigestion of the gastric mucosa may result from a functional lack of equilibrium of the innervation of the stomach, with the vagal effects prevailing. This method, however, was not practiced at this time; it was only in 1943, after the reintroduction by Dragstedt, that vagotomy was practiced on a large scale. In 130 cases of vagotomy, on which the speaker's experience is based, results always were fairly satisfactory, although it has not yet been possible to pass final judgment. Today one can state that vagotomy is indicated in recurrences of peptic ulcer, in high gastric ulcers and in duodenal ulcers. Vagotomy, as a rule, should be combined with gastroenterostomy. Concerning the technic the speaker favors subdiaphragmatic vagotomy for gastric neuroses and peptic ulcers. The mortality rate is 3.3 per cent.

Those who participated in the discussion which followed the report were in favor of vagotomy when it is indicated. Professor Dogliotti, of the University of Turin, was in favor of subdiaphragmatic vagotomy for gastroduodenal ulcers, on the basis of his own 70 cases. He suggested calling vagotomy "Pieri's operation" in honor of the surgeon who first conceived and applied it.

The third subject of the Congress was "Postoperative Tetanus." The speaker, Professor Giovannini from Bologna, started from the premise that, notwithstanding the most careful asepsis before and during surgical intervention, there may still be observed cases of postoperative tetanus; i. e., those which occur after surgical intervention carried out with due precautions in an area which has not been infected with Clostridium tetani during recent trauma. The pathogenesis constitutes the central problem of the question. The exogenic origin of tetanus was demonstrated in some cases (use of contaminated material or improperly sterilized instruments). The part which surgical gut may play in the occurrence of tetanus in these cases has been exaggerated. The preoperative iodinization, however, of the surgical gut according to suitable standards is a satisfactory prophylactic safeguard against the tetanus germ.

One must admit that in many cases the tetanus is of endogenous origin. The surgical intervention provides for the germ, a saprophyte already present in the organism, the optimum local and general conditions under which it may develop. In a few cases one may admit that tetanus has been present before the intervention and that it was manifested clinically only after the intervention.

Specific prophylaxis consists of simultaneous injections of serum and anatoxin in different areas; these should be repeated conveniently. The most rational treatment consists of serum-anatoxin therapy by any route according to the preference of the individual surgeon. Curare is a useful sedative for the muscles. Penicillin is effective. The mortality from postoperative tetanus still varies from 50 to 70 per cent.

The fourth subject on which reports were made was "Anesthesia by Endotracheal Intubation" and "Curare in Anesthesia." The subject was divided in two parts. The first part ("Endotracheal Anesthesia") was presented by Dr. Cura and Dr. Manzocchi from Milan, who affirmed that the adoption of the endotracheal technic in the field of inhalation narcosis constitutes the realization of one of the most important advances in the realm of anesthesia.

One speaks of endotracheal anesthesia by means of insufflation when the anesthetic mixture is introduced into the lungs under positive pressure; on the contrary one speaks of endotracheal anesthesia by means of inhalation when the anesthetic mixture is inhaled and exhaled by means of an endotracheal catheter with atmospheric pressure; the latter today is the technic almost universally adopted.

After a description of the instrumentarium (Magill's tube, laryngoscope, Magill's forceps, nebulizer) the speakers discussed the technic of intubation of the trachea; they emphasized that it should be carried out rapidly and without trauma. Muscular relaxation and absence of reflexes are essential for preventing complications. If one wants to follow the orotracheal route the position of the patient represents the most important technical detail; Chevalier Jackson's second position should be preferred. If one wants to follow the rhinotracheal route, tubular breathing is to be considered the safest guide on the progress of the tube toward the vocal glottis; it increases as it gets nearer to the glottis and it remains as such when the tube is inside the trachea. Trauma must be avoided during the removal of the tube, and it seems convenient to perform extubation with the patient under anesthesia.

Concerning the methods of anesthesia under which intubation may be carried out, the speakers stated that after appropriate preanesthesia intubation may be performed with patient under general or local anesthesia. The speakers then listed many advantages of the endotracheal method as compared with other methods of anesthesia by inhalation, and they also mentioned a few disadvantages.

The second part of the reports was devoted to "Curare in Anesthesia." Professor Tosatti from Rome presented the history of the pharmacology of curare, and in addition its effect on man and its employment for the practice of anesthesia.

Correspondence

THE TOWN MEETING DISCUSSION OF COMPULSORY SICKNESS INSURANCE

To the Editor:—If the public had any impression that Mr. Ewing and the proponents of compulsory sickness insurance are waging a clean fight based on sound fact, the recent debate at the Town Meeting of the Air, in Town Hall, New York, should dispel such naive thinking. The attack is now concentrated on the profession of America as represented by the American Medical Association and the 85 per cent of American physicians who are determined to save the American people from the catastrophe of federalized control of the private practice of medicine.

The Utopian promises are made of free medicine (of course of the highest order!), plenty of doctors, plenty of nurses, hospitals and equipment, accelerated research in a dreamland free from disease, human error and suffering, all for 75 cents a week per person. The American Medical Association was charged with hiding behind an "Iron Curtain" through which the public may not penetrate and behind which its members cannot be heard.

A carefully planned trick of planting a question based on the protest of 136 uninformed members of the American Medical Association was used to permit Mr. Cruikshank of the American Federation of Labor to charge that the doctors are held behind this "Iron Curtain" to prevent them from supporting compulsory sickness insurance. Mr. Ewing and Mr. Cruikshank do not seem to know that the House of Delegates is made up of freely elected delegates from the state societies. All the freedom of a true democracy is the fundamental right of every member of the American Medical Association. Any charge to the contrary springs from ignorance of the functions and operations of our House of Delegates.

It was obvious by the character of the planted questions at this forum that the intent is now to "divide and conquer." The attack is being concentrated on the responsible, elected leaders of the American Medical Association for one purpose and one purpose only. It is to cause dissension in our ranks. This has become a vicious fight. If ever the American medical profession needed solidarity it is now. Forget petty differences and let us show the people that we are fighting to protect them from all the evils of political medicine. Let us not be drawn into the trap being set by those who would capitalize on the defections of a few.

F. F. Borzell, M.D.,
Speaker of the House of Delegates, Philadelphia.

PHYSICIANS FOR THE ARMED FORCES

To the Editor:—In regard to your Current Comment headed "Drive To Obtain Physicians For The Armed Forces Recommended," in The Journal, February 12, I should like to offer the following suggestions:

1. Service should be compulsory in the armed forces for all A.S.T.P. and Navy V-12 students who secured their medical education at government expense and who for various reasons were discharged from the services when their medical education was completed; they should now be made to give the two year period that other men who were not discharged have been giving.

2. Those men of military age (to 60 years) who did not serve in the armed forces in World War II by reason of "essentiality" or physical reasons, dependents (the United States considers an army officer's pay sufficient to keep a family) or who were able to ignore the war and go about their own interests, should be inducted and "allowed" to do their bit for two years. This class would secure the needed specialist care that the armed forces lack.

It should be borne in mind that a man up to the age of 60 who is able to practice in civilian life is able to serve his country in time of peace. The younger men can serve in the more active assignments, the older men in hospitals, dispensaries, recruiting, sea assignments on larger ships.

Proper regulations can readily be made that will provide physical examinations and records that will prevent those serving in these two classes from securing a retirement for disability that is not a legitimate claim from service acquired injury or illness.

If this plan should be followed there would be no shortage of physicians in the armed forces.

Robert John Carpenter, M.D.
North Adams, Mass.

REPORTS OF MEDICAL EXAMINATIONS FOR VETERANS ADMINISTRATION RATING AGENCIES

To the Editor:—The National Rehabilitation Commission of the American Legion wishes to call to the attention of the medical profession that many veterans who are attempting to get disability claims adjudicated before Veterans Administration rating agencies are experiencing delays and handicaps in accomplishment of final rating because of physicians' reports and statements which are unsatisfactory or not acceptable to the Veterans Administration for one reason or another. The purpose of this statement is to clarify what the Veterans Administration desires of physicians' reports to adjudicate claims properly. The Veterans Administration regulations require that the physician's statement be notarized only in initial establishment of service connection for a specific disease or condition. While this requirement is considered a waste of time by most physicians, it is a Veterans Administration requirement in establishing initial service connection. However, most doctors will be examining and working on reports for veterans who have already had service connection established, and are conducting the examination to determine whether the condition has improved, regressed or remained stationary. In such cases, the statement on the physician's letterhead is sufficient. Notarization is not required in these cases.

Since claims may be made months, or, in some cases, years after the physician has examined or treated the veteran for a given condition, the doctor should state in the body of his report whether the information is from his office or clinic records, or from memory. Since Veterans Administration adjudication personnel have among their number physicians, or they can obtain the advice of Veterans Administration doctors, the reports should be in professional language with no attempt to simplify the terminology for lay interpretation. Interpretation of the validity of the doctor's data in relation to the veteran's claim will be made by medical personnel. Therefore the reports should be as complete and detailed as possible.

In the report, the date of first treatment and the length of time the veteran has been observed by the doctor should be included. Details of the pertinent history and physical examination are essential. The detailed medical findings, both physical and laboratory, should be included. For instance, degree of extension or flexion of an ankle may be very important in determining adjudication results. Such detailed medical findings should be listed by the reporting physician. When this is done, the final diagnosis made by the doctor can be interpreted in the light of the data that led to the making of the diagnosis. It is not sufficient merely to state that the veteran was treated for a given condition, without giving some of the pertinent facts relative to the condition in the particular veteran. If laboratory tests or roentgenologic or other special examinations are done, reports of these should be included, if such reports are available. Some of these data may be valuable to aid the Veterans Administration in establishing the merit of a veteran's claim.

In summary, the medical report for the veteran for adjudication purposes should be complete and as detailed as possible. History, physical examination, laboratory and special examinations, with dates of period of observation and performance of examinations, are desired. Only with such complete reports can justice to the claim of the veteran be done by the Veterans Administration adjudication agencies.

T. O. Kraabel,
Director, National Rehabilitation Commission, The American Legion, Washington, D. C.

Medical Motion Pictures

FILM REVIEWS

Indirect Inguinal Hernia. 16 mm., black and white, silent (2 reels). Prepared in 1929 and produced in collaboration with the American College of Surgeons and Daniel L. Borden, M.D., Washington, D. C. Procurable on rental or purchase from Encyclopaedia Britannica Films, Inc., 1150 Wilmette Avenue, Wilmette, Ill.

Reel I, **Surgical Anatomy,** 391 feet, showing time sixteen minutes.

By animation and dissection on a cadaver some of the factors involved in the production of an indirect inguinal hernia and the anatomy encountered in performing an indirect inguinal herniotomy are illustrated. The dissection is unusually good and the structures encountered are well pointed out and captioned.

Reel II, **Clinical Aspects,** 280 feet, showing time eleven minutes.

This reel deals with the diagnosis of an indirect inguinal hernia. By means of animation superimposed on a patient, the pathologic processes sometimes present in a hernia are well depicted. Complete, incomplete, reducible, nonreducible and strangulated hernias are all illustrated.

Although these motion pictures were produced some time ago, they are basic type films and can be recommended for use in teaching residents, interns and especially medical students. They would be very valuable as an adjunct to lectures on the subject of hernias as well as surgical anatomy and anatomy.

In both reels, the animation is simple and well done and the photography is clear. From a production point of view, these films are superior in some respects to many which have been produced in more recent years.

Curare in Barbiturate Oxygen Anesthesia. 16 mm., color, sound, 700 feet (1 reel), showing time nineteen minutes. Prepared by T. C. Davison, M.D., and A. H. Letton, M.D., Atlanta, Ga. Produced in 1948 and procurable on loan from E. R. Squibb & Sons, Motion Picture Department, 745 Fifth Avenue, New York 22.

This film presents mainly the way patients are handled at the Georgia Baptist Hospital and demonstrates that more relaxation can be secured and intravenous administration of less thiopental sodium required, if both thiopental and curare are administered. It illustrates a vagotomy with patient under thiopental-oxygen-intocostrin® anesthesia. Several other surgical procedures under the same anesthetic management are briefly shown. More emphasis is placed on the surgical and general hospital care of patients than on detailed information pertaining to the anesthetic management.

The statistical material presented by the narrator dealing with the advantages of thiopental-oxygen-curare mixtures over thiopental-oxygen alone would have been clearer and more concise if given in table form. Since these drugs do not have truly analgesic properties, and both thiopental and intocostrin® have potentially great and not always predictable depressant action as regards respiration, there should be a demonstration by the responsible physicians of the diagnosis and management of the physiologic changes produced by such drugs. More discussion of the treatment of overdosage is needed, as well as enumeration of, and means of avoiding, the various complications that may occur during or following either intravenous administration of thiopental or administration of curare.

In the introductory part of this motion picture, there is a considerable amount of unnecessary footage which shows in great detail a patient leaving her car walking up the steps to the entrance of the hospital, routine of admission and medical examination for a peptic ulcer followed by the surgical operation and her convalescence period. A greater part of this should have been deleted and the opening scene replaced by showing the operating room and patient ready for surgery.

The photography is excellent. However, from a production standpoint the film is very poorly done.

Thyroidectomy by Electro-Surgery. 16 mm., color, silent, 787 feet (2 reels), showing time thirty minutes. Prepared in 1941 by and procurable on loan from Arnold S. Jackson, M.D., Jackson Clinic, Madison, Wis.

This film is designed to show the preoperative procedure, the operative technic of a thyroidectomy and postoperative care at the Jackson Clinic. It demonstrates a skilful method of excising most of the thyroid gland by the use of the electrocautery. This method necessitates local anesthesia, which in turn demands heavier preoperative medication, longer incisions, wider exposure, less pulling on retractors and much more gentleness. The large vessels must be recognized and tied separately by ligature. Hemostasis must be completed by suturing the capsular edges of the remnant; to do this the remnant should be hollowed out to form a concave surface. All these technics are necessary to accompany the electrocautery method.

The second reel is more or less a repetition of the first reel. The diagnostic tests portrayed are of little value to one sufficiently informed to appreciate the technic.

The technic and surgical anatomy are not sufficiently detailed to be of much use to the uninitiated but are of value and interest to a surgeon already familiar with surgery of goiter.

The film was made before the advent of thiouracil derivatives. The short discussion on preoperative treatment, evaluation of risk and two stage operations is antiquated but because of its brevity does not detract from the film.

The photography of the patients is only fair; however, the surgical sequences are excellent.

Supradiaphragmatic Gastric Vagotomy for Peptic Ulcer, the Abdominal Approach. 16 mm., color, silent, 550 feet (2 reels), showing time twenty minutes. Prepared in 1948 by Lester R. Dragstedt, M.D., Ph.D., Chairman, Department of Surgery, University of Chicago. Procurable on loan from Davis & Geck, Inc., 57 Willoughby Street, Brooklyn 1.

Reel I: A series of drawings illustrates the technic of the operation and the anatomy of the vagus nerves at the lower end of the esophagus and at the upper part of the stomach.

Reel II presents an excellent demonstration of the technic of transabdominal vagotomy as performed by the author.

Although the operation is done on a patient who has a duodenal ulcer without obstruction, the ulcer is not demonstrated sufficiently well for one to note its size or position and whether it is causing obstruction. The operative procedure is illustrated by a series of drawings. An upper left rectus incision is made. The triangular ligament is divided enabling mesial retraction of the left lobe of the liver. The mediastinum is opened and traction is placed on the esophagus to bring it into the abdomen for a distance of about 5 cm. The vagus nerves are demonstrated and approximately 3 to 4 cm. excised. The cut ends are ligated. The incised visceral peritoneum is resutured and the mediastinum and abdominal wall closed.

The postoperative care of the patient's stomach by use of an indwelling gastric tube to which is attached a continuous suction apparatus is depicted briefly. Additional information on prevention of impending dehydration, toxemia and electrolyte imbalance, and marked loss of gastric secretion, which is sometimes prolonged for several days, would be of value.

Much footage was used in closing the incision, which seems to be a routine closure.

This motion picture is recommended for showing to general surgeons, general practitioners, residents, interns and medical students.

Photography, animation and visual demonstration are excellent with the exception of a few places in Reel II, where the surgeon's right hand obstructs the operative field. This part could well be eliminated.

Council on Medical Education and Hospitals

DISCONTINUATION OF GRANTING TEMPORARY APPROVAL TO RESIDENCY TRAINING PROGRAMS

The Council on Medical Education and Hospitals has voted not to grant any additional temporary approvals for residency training programs. This action, effective as of Jan. 1, 1949, was taken in concurrence with the Advisory Board for Medical Specialties. Hereafter, residency training programs will be considered for approval only after the programs have been inspected by representatives of the Council. The Council plans to inspect in the near future all residencies holding temporary approval as of Jan. 1, 1949. On the basis of the findings of the inspections, the Council in concurrence with the specialty boards concerned will decide whether to grant these residencies full approval or to discontinue approval.

Donald G. Anderson, M.D., Secretary.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* Various Centers. June 20-22, Sept. 12-14. *Part II.* April 25-26. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology, Inc. *Written.* Various Centers. July 15: Final date for filing application is April 15. *Oral.* April 10-14 and Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

American Board of Dermatology and Syphilology: *Oral.* New York City, April 1-3. Sec., Dr. George M. Lewis, 66 East 66th Street, New York 21.

American Board of Internal Medicine: *Oral.* New York City, March 23-25. Philadelphia, June 1-3. *Written.* Oct. 17. Final date for filing application is May 1. Asst. Sec.-Treas., Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

American Board of Neurological Surgery: *Oral.* Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

American Board of Obstetrics and Gynecology, Inc.: *Oral.* Chicago, May 8-14. Final date for filing application is April 1. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

American Board of Ophthalmology: *Oral.* San Francisco, March 21-24; New York, June 11-15; St. Louis, Oct. 15-19; Boston Dec. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

American Board of Orthopaedic Surgery. *Part I.* New York City, April 22-23; Atlanta, Ga., April 29-30; Indianapolis, May 6-7 and Denver, May 13-14. *Part II.* New York City, Jan. 1950. Final date for filing application for Part II is Aug. 15. Address: Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14, Calif.

American Board of Otolaryngology: New York, May 11-14. *Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.*

American Board of Pathology: Boston, April 12-13. Sec., Dr. Robert A. Moore, 507 S. Euclid Ave., St. Louis 10, Mo.

American Board of Pediatrics: *Oral.* Baltimore, May 7-9. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Rd., Rosemont, Pa.

American Board of Physical Medicine. Atlantic City, June 4-5. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

American Board of Plastic Surgery: Examinations are given in June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

American Board of Psychiatry and Neurology, Inc. December, New York City. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Radiology. Atlantic City, June 2-4. Sec., Dr. [illegible] Second Ave., S.W., Rochester, Minn.

[illegible] gery: *Written.* Various Centers, October. Fi[illegible]on is July 1. Sec., Dr. J. Stewart Rodman, 22[illegible]

American Board of Urology: Feb. 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

Arkansas:* Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 9-10. Sec., Dr. C. H. Young, *1415 Main St., Little Rock.*

[illegible]: *Examination.* San Francisco, June 20-23. Sec., Dr. Fr[illegible] St., Sacramento. [illegible] Denver., April 5. *Written*, Denver, June 20-22. Sec., Dr. W. W. King, 831 Republic Bldg., Denver 2.

Delaware: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

District of Columbia: * *Written*, Washington, May 9-10. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., Washington.

Florida: * *Examination*, Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

Georgia: *Examination.* June, Atlanta and Augusta. *Reciprocity.* Atlanta. June. Sec., Mr R. C. Coleman, 111 State Capitol, Atlanta.

Guam: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam. % F.P.O., San Francisco, Calif

Hawaii: * *Examination.* Honolulu, July 11-14. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

Idaho: Boise, July 11-13. Sec., Miss Estella S. Mulliner, Bureau of *Occupational Licenses, 355 State House, Boise.*

Illinois: Chicago, April 12-14. Supt. of Registration, Mr. Fred W. Ruegg, Capitol Bldg., Springfield.

[illegible]: [illegible] I[illegible]napolis, June 21-23. Sec. Board of Medi[illegible] Dr. Paul R. Tindall, *416* K. of P. Bldg., [illegible]

Iowa: * *Examination.* Iowa City, June 13-15. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

Kansas: Kansas City, June 1-2. Sec., J. F. Hassig, 905 North 7th St., Kansas City, Kans.

Kentucky: *Examination.* Louisville, June 15-17. Sec., Dr. Bruce Underwood, *620 S. 3rd St.*, Louisville 2.

Maryland: *Examination.* Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 14-15. Sec., *Dr.* John A. Evans, 612 West 40th St., Baltimore.

Minnesota: * Minneapolis, April 19-21. Sec., *Dr. J. F.* Du Bois, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: Jackson, June 21-22. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

Missouri: *Examination.* St. Louis, May 30-31 and June 8-10. Exec. Sec., Mr. John A. Hailey, Box 4, Jefferson City.

Montana: Helena, April 4-6. Sec., Dr. O. G. Klein, First National Bank Building, Helena

Nebraska: * *Examination.* Omaha, *June. Dir., Bureau* of Examining *Boards*, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

Nevada: Carson City, May 2. Sec., Dr. G. H. Ross, 112 N. Curry Street, Carson City.

New Jersey: *Examination.* Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

New Mexico: * Santa Fe, April 11-12. Sec., Dr. V. E. Berchtold, 141 Palace Ave., Santa Fe

New York: Albany, Buffalo, New York and Syracue, June 28-July 1, Sec., Dr. Jacob L. Lochner, *23* South Pearl St., Albany.

North Carolina: *Endorsement.* Pinehurst, May 9. *Examination. Raleigh, June 23-25.* Sec., Dr. Ivan Procter, 226 Hillsboro St., Raleigh.

Ohio: *Endorsement.* Columbus, April 5 *Written.* Columbus, June. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Oregon: * *Endorsement.* Portland, April 29-30. *Examination.* Portland, July. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

Pennsylvania: *Examination.* Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.

Rhode Island: * *Examination.* Providence, April 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Carolina: *Examination.* Columbia, *June 27-29.* *Endorsement.* Columbia, March 7, April 4, May 2, June *27-28*, Aug. 1, Sept. 5 and Oct. 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

South Dakota: * *Examination.* Pierre, July 19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

Tennessee: * *Examination.* Memphis, March 23-24. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

Texas: *Examination.* Austin, June 16-18. Sec., Dr. M. H. Crabb. 209 Medical Arts Bldg., Fort Worth 2.

Utah: *Examination* Salt Lake City, July. Sec., Dept. of Registration. Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

Virginia: *Examination.* Richmond, June 17-18. *Reciprocity.* Richmond. June 16. Dr. K. D. Graves, 631 First St., S.W., Roanoke.

Washington: * Seattle, July. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

West Virginia: Charleston, April 7-9. Sec., Dr. N. H. Dyer, State Capitol, Charleston 5.

Wisconsin: * *Examination.* Milwaukee, June 28-30. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

Wyoming: Cheyenne, June 6. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

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* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arkansas: *Examination.* Little Rock, May 3. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.

Colorado: *Examination.* Denver, June 1-2. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

District of Columbia: *Examination.* Washington, April 18-19. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., Washington.

Florida. *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

Iowa: *Examination.* Des Moines, April 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Michigan: *Examination.* Detroit and Ann Arbor, May 13-14. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

Minnesota: *Examination.* April 4, June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

New Mexico: *Examination.* Santa Fe, March 20. Sec., Miss Marguerite Kilkenny, 110 W. Houghton St., Santa Fe.

Oklahoma: April 15. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon: Portland, June 18, *Sept. 3 and Dec. 3.** Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

South Dakota: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St., Yankton.

Tennessee: Memphis, March *21-22* and July 8-9. Sec., Dr. O. W. *Hyman, 874* Union Ave., Memphis 3.

Wisconsin: Madison, April 2. Milwaukee, June 4. Sec., Prof. W. H. Barber. Ripon College, Ripon.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, New York

38:1361-1498 (Oct.) 1948. Partial Index

*Recent Developments in Treatment of Syphilis. E. W. Thomas. —p. 1361.
Some Unmet Needs in Tuberculosis Control—Challenge for the Future. W. P. Shepard.—p. 1370.
Physical Disability: National Problem. H. A. Rusk and E. J. Taylor. —p. 1381.
Participation of Puerto Rico in Federal Health and Hospital Program. E. G. Morales.—p. 1387.
Coordination of Preventive and Curative Services in Maryland. W. H. F. Warthen.—p. 1393.
Comparison of Immunogenic and Anaphylactogenic Properties of Rocky Mountain Spotted Fever Vaccines Prepared from Infected Yolk Sacs and from Infected Tick Tissue. D. Lackman and R. R. Parker. —1402.
Laboratory Procedure for Evaluating Practical Performance of Quaternary Ammonium and Other Germicides Proposed for Sanitizing Food Utensils. G. R. Weber and L. A. Black.—p. 1405.
Abortion as Cause of Death. C. Tietze.—p. 1434.
Epidemiologic Approach to Accident Prevention. E. Press.—p. 1442.

Treatment of Syphilis.—Thomas evaluated the present status of penicillin in the treatment of syphilis. The time-dose relationships of therapy with aqueous solutions of penicillin are different from those with slowly absorbed preparations. So far, the best results in the treatment of early syphilis seem to have been obtained with daily injections of 300,000 to 600,000 units of penicillin in oil and beeswax for fifteen days. Procaine penicillin G in oil and 2 per cent aluminum monostearate can now be substituted for penicillin in oil and beeswax, and individual injections of this preparation do not have to be given as frequently as with penicillin in oil and beeswax. Probably two injections of 600,000 units of this preparation a week for two or three weeks will accomplish as much as daily injections of 300,000 units of penicillin in oil and beeswax for fifteen days. Neurosyphilis should be treated with at least 6,000,000 units of penicillin over a period of not less than fifteen days and preferably three weeks. Injections of 600,000 units of procaine penicillin in oil and aluminum monostearate three times a week for three weeks should prove sufficient therapy for most cases of neurosyphilis. For late symptomatic and late latent syphilis from 4,000,000 to 6,000,000 units of penicillin should be given over a period of not less than fifteen days. In most cases of late syphilis, whether symptomatic or asymptomatic, it is impossible to reverse positive serologic reactions for syphilis to negative within five or more years. Such patients should be observed with quantitative serologic tests at regular intervals. Great rises in quantitative tests from previous levels, sustained for several weeks or months, are an indication for further therapy.

American Practitioner, Philadelphia

3:131-196 (Nov.) 1948

Headache: Review of Literature. A. P. Friedman.—p. 131.
Management of Diabetes Mellitus. G. G. Duncan.—p. 139.
How Frequently Is Nervousness the Cause of Difficulty in Swallowing? P. P. Vinson.—p. 152.
Gout. W. K. Myers,—p. 158.
Causes of Hematuria. S. S. Baird.—p. 162.
Pathologic Physiology of Hemoglobin Formation. C. A. Finch.—p. 165.
Psychosomatic Problems of the Aged. L. C. Sanders.—p. 169.
Ventricular Aneurysm: Report of 2 Cases. W. T. Zimdahl and S. Busuego.—p. 185.
Jaundice. P. Thorek.—p. 192.

Journal of Bone and Joint Surgery, Boston

30-A:805-1062 (Oct.) 1948. Partial Index

Bone Lesions in Eosinophilic Granuloma, Hand-Schüller-Christian Disease, and Letterer-Siwe Disease. I. Ponseti.—p. 811.
Response of Quadriceps Femoris to Progressive-Resistance Exercises in Poliomyelitic Patients. T. L. Delorme, R. S. Schwab and A. L. Watkins.—p. 834.
Reconstruction of Metacarpophalangeal Joint with Metatarsal Transplant. W. C. Graham and D. C. Riordan.—p. 848.
Transplantation of Tibia and Fibula to Replace Femur Following Resection: "Turn-Up-Plasty" of Leg. C. P. Van Nes.—p. 854.
Transverse Rotation of Segments of Lower Extremity in Locomotion. A. S. Levens, V. T. Inman and J. A. Blosser.—p. 859.
Complete Dislocation of Talus. W. J. Newcomb and E. A. Brav. —p. 872.
*Occurrence and Management of Reflex Sympathetic Dystrophy (Causalgia of Extremities). J. W. Toumey.—p. 883.
Tenosynovitis of Extensor Carpi Ulnaris Tendon Sheath. D. D. Dickson and C. A. Luckey.—p. 903.
Synovectomy of Knee Joint: Review of Literature and Presentation of Cases. M. L. Pardee.—p. 908.
*Estrogens and Bone Formation in Human Female. Mary S. Sherman. —p 915.
*Streptomycin in Treatment of Chronic Infections of Bone. J. C. Wilson Jr.—p. 931.
Diffuse Inflammation of Cartilage: Case Report of Hitherto Unreported Entity. E. J. Gordon, A. W. Perlman and N. Schechter.—p. 944.
Accessory Tarsal Scaphoid. I. Zadek and A. M. Gold.—p. 957.
Vascular Complication of Disk Surgery. E. C. Holscher.—p. 968.
Criteria for Spine Fusion Following Removal of Protruded Nucleus Pulposus. G. A. Caldwell and W. B. Sheppard.—p. 971.
Rapid Method of Correcting Deformity in Scoliosis Preliminary to Fusion. V. A. Scudese.—p. 980.
Bone Disturbances in Injuries to Spinal Cord and Cauda Equina (Paraplegia): Their Prevention by Ambulation. A. S. Abramson.—p. 982.
Device in Which Springs Replace Action of Paralyzed Muscles of Arm. G. E. Ward, H. R. Bohlman and R. V. Wood.—p. 987.
Control of Forearm Rotation by Kirschner Wire. S. Bunnell and L. D. Howard Jr.—p. 992.
Operation for Old Dislocation of Shoulder. J. S. Neviaser.—p. 997.
Congenital Bilateral Complete Absence of Radius in Identical Twins. R. R. Goldenberg.—p. 1001.
Bilateral Fracture of Pars Interarticularis of Lumbar Neural Arch. M. B. Roche.—p. 1005.

Reflex Sympathetic Dystrophy (Causalgia of Extremities).—Toumey defines reflex sympathetic dystrophy as a disturbance of the sympathetic nervous system, characterized by pain and sympathetic phenomena which may follow traumas. There has been an enormous confusion of terms; the following terms were used in describing the 31 cases reviewed here: "reflex sympathetic dystrophy," "causalgia," "minor causalgia," "post-traumatic pain," "traumatic sciatica," "post-traumatic sympathetic phenomena," "Sudeck's atrophy" and "nerve injury." The diagnosis of reflex sympathetic dystrophy rests on the clinical picture of sympathetic phenomena, which include: coldness, changes in skin color, increased sweating, swelling and atrophy of skin and bone, plus the relief of pain, sweating and coldness by procaine sympathetic blocks. Sympathectomy is justified if good, but not permanent, results are obtained by the procaine sympathetic blocks. Sympathectomy was performed at the Lahey Clinic in the cases reviewed in this paper. It relieved pain in two thirds of the 31 cases. Surgery, such as arthrodeses of painful joints, may be required in addition to sympathectomy. The best results were achieved in patients who had had reflex sympathetic dystrophy for relatively short periods and in those who were in the younger age groups. If the result of the block is poor, the result of the sympathectomy will also be poor, but even though the result of the block is good, the result of sympathectomy will not be good in all cases. The prevention of reflex sympathetic dystrophy depends on treating traumas so that pain is minimized and function is restored to the extremity as rapidly as possible.

Estrogens and Bone Formation.—Sherman shows that in the human female estrogens are in some fashion concerned with the rate of growth and maturation of the skeleton. Investigators have studied postmenopausal osteoporosis as a hormonal deficiency and have found that they could produce and maintain calcium retention in the human being by the injection of estrogens. However, these workers admit that irrefutable evidence that the bones have actually become more dense has never been obtained by them. The author presents the history of a patient in whom this was possible. The patient, a woman, aged 58, had had a surgical menopauseventeen years before, but the diagnosis of postmenopausal osteoporosis could not explain the greatly elevated phosphatase level or the roentgenographic appearance of the skull. Moreover, it is hard to conceive of a generalized process which would spare one tibia while the other practically disappeared, without involvement of the fibula, and affect the lumbar spine and pelvis so severely, while the rest of the trunk remained relatively normal. It was concluded that the picture could best be interpreted as a severe postmenopausal osteoporosis, superimposed on previously existing Paget's disease. Massive estrogen therapy was followed by a remission of clinical symptoms and by actual reconstitution of bone. Withdrawal of the estrogen produced an exacerbation; its readministration was again followed by improvement. For over two years the patient has been kept on daily doses of 2,000 to 10,000 rat units (0.33 to 1.66 mg.) of estradiol benzoate; during this time she has maintained her improvement and has not shown untoward symptoms.

Streptomycin in Chronic Infections of Bone.—The purpose of the study conducted by Wilson was to determine whether or not the systemic and local use of streptomycin, in addition to thorough sequestrectomy and painstaking care of the wound, would hasten the healing of wounds in patients ill with osteomyelitis of long duration. Twenty-five cases of chronic osteomyelitis are reported in which discharging sinuses had been present for an average of nineteen months. Many types of treatment had been tried, without success. A plan of therapy was evolved on the following principles: (1) thorough investigation of the wound bacteria; (2) radical sequestrectomy after adequate preoperative preparation; (3) the use of streptomycin and penicillin before, during and after surgery; (4) painstaking care of the wound after surgery to prevent contamination. Twenty-one patients have responded favorably, but 4 patients failed to respond and have had amputation. The author emphasizes that the use of streptomycin offers no panacea for the treatment of chronic osteomyelitis. The drug cannot replace adequate surgery, but, when combined with thorough sequestrectomy, it is beneficial.

New York State Journal of Medicine, New York

48:2207-2318 (Oct. 15) 1948

Diagnosis and Management of Postcholecystectomy Syndrome. J. R. Twiss and R. F. Carter.—p. 2245.
Acute Pancreatitis. H. L. Bockus and E. C. Raffensperger.—p. 2252.
Streptomycin in Tuberculosis: Experimental Observations on Efficacy, Shortcomings, and Limitations. W. H. Feldman.—p. 2260.
*Rickettsialpox. H. M. Rose.—p. 2266.
Evaluation of Present Status of Antihistaminic Substances. W. C. Spain and F. A. Pflum.—p. 2272.
Guided Liver Biopsy Through Laparotomy Incision. E. E. Jemerin. —p. 2276.
Selection of Hypertensive Patients for Sympathectomy. H. I. Russek, J. L. Southworth and B. L. Zohman.—p. 2278.

Rickettsialpox.—According to Rose rickettsialpox is a disease entity which was first recognized in 1946 and has not been observed outside New York city. Huebner and others identified the causative agent as Rickettsia akari and showed that the infection is, in all likelihood, transmitted to man by the bite of a rodent mite, Allodermanyssus sanguineus. These investigators isolated R. akari from mice trapped in apartment houses when cases of rickettsialpox had occurred. Rickettsialpox is now common in New York city. More than 350 cases have been reported to the department of health since the spring of 1946. The author reports 3 cases which illustrate important features of the disease and reviews observations on 17 patients who were hospitalized for rickettsialpox. In 15 of the 17 patients a primary lesion could be identified with certainty. These consisted of areas of erythema and induration from 1.0 to 2.5 cm. in diameter. The rash usually appeared within six days after the onset of fever. The constitutional symptoms were fever, headache, chills and backache or general muscular aching. These symptoms appeared from two to seven days after the appearance of the primary lesion. The fever curve was of the remittent type and fell to normal by lysis, generally within a week. Headache was a prominent feature and was usually frontal. Attempts were made in 9 patients to recover the causative agent by inoculating blood collected early in the disease into mice, guinea pigs and chick embryos. R. akari was successfully isolated from 7 of the patients by mouse inoculation, and from 1 of these patients the organism was also cultivated directly in chick embryos. Rickettsialpox is a nonfatal disease and only symptomatic measures are required. A laboratory infection with rickettsialpox was not modified by streptomycin.

Obstetrical & Gynecological Survey, Baltimore

3:603-778 (Oct.) 1948

Some Functional Activities of Placental Trophoblast. G. B. Wislocki, E. W. Dempsey and D. W. Fawcett.—p. 604.
Placental Dysfunction in Eclamptogenic Toxemias. E. W. Page.—p. 615.
Patterns of Uterine Contractility in Women During Pregnancy. S. R. M. Reynolds, L. M. Hellman and P. Bruns.—p. 629.
Pregnancy and The Thyroid Gland. J. P. Peters, Evelyn B. Man and M. Heinemann.—p. 647.
Excretion of Various Hormone Metabolites in Normal Pregnancy. E. H. Venning.—p. 661.
Urinary Excretion of Ketosteroids in Pregnancy. K. Dobriner, S. Lieberman and C. P. Rhoads.—p. 677.
Endocrine Patterns in Abortion. Eleanor Delfs and G. E. S. Jones. —p. 680.
Experimental Studies on Nutrition in Pregnancy. J. Warkany.—p. 693.
Biochemical Assessment of Nutritional Status During Pregnancy. W. J. Darby, R. O. Cannon and Margaret M. Kaser.—p. 704.
Nutritional Needs in Pregnancy in Relation to Nutritional Intakes as Shown by Dietary Histories. Bertha S. Burke.—p. 716.
*Diet Studies in Pregnant Patients. W. J. Dieckmann, D. F. Turner, E. J. Meiller, M. T. Straube and others.—p. 731.
Hemorrhagic Tendencies in Toxemia of Pregnancy (Practical Evaluation and Management). F. S. Kellogg.—p. 746.
Some Observations on Liver Function in Pregnancy. E. W. Munnell. —p. 758.
Clinical Management of Late Toxemias of Pregnancy. S. A. Cosgrove and L. C. Chesley.—p. 769.

Diet Studies in Pregnancies.—Dieckmann and his associates show that reports of the value of an adequate amount of the proper foods in pregnancy show major inconsistencies. In a preliminary study of 100 patients the protein intake of most of the women was found to be below 85 Gm. per day. In some cases, instruction to increase the protein intake resulted in only small changes in food intake. In other cases, improvements were made. A preliminary study of the data demonstrates the value of weighing the food intake and periodically determining the protein balance. Studies on nutrition in pregnancy are being carried out in several other institutions. It is hoped that the results can be pooled and definite conclusions, based on an adequate number of patients, can be made as to what foods the pregnant woman should eat.

Proc. of Staff Meet. of Mayo Clinic, Rochester, Minn.

23:481-520 (Oct. 27) 1948

*Cardiac Catheterization in Diagnosis of Various Cardiac Malformations and Diseases. H. B. Burchell, R. L. Parker, T. J. Dry and others. —p. 481.
Characteristics of Resistance-Wire Manometer for Measuring Blood Pressure in Cardiac Catheterization Studies. E. H. Lambert and R. E. Jones.—p. 487.
General and Special Technics in Cardiac Catheterization. E. H. Wood, J. E. Geraci, A. A. Pollack and others.—p. 494.
Interatrial Mixing of Blood and Pulmonary Circulatory Dynamics in Atrial Septal Defects. B. E. Taylor, J. E. Geraci, A. A. Pollack and others.—p. 500.
Patent Ductus Arteriosus with Pulmonary Hypertension and Atypical Clinical Findings. J. W. DuShane and G. E. Montgomery Jr.—p. 505.
Ventricular Septal Defect and Pulmonary Hypertension Without Hypoxemia. H. B. Burchell, B. E. Taylor, A. A. Pollack and others. —p. 507.
Atrial Septal Defect and Probable Tricuspid Atresia in Adults. J. E. Geraci, T. J. Dry and H. B. Burchell.—p. 510.
Pulmonary Stenosis Without Septal Defect. A. A. Pollack, B. E. Taylor, H. M. Odel and H. B. Burchell.—p. 516.

Cardiac Catheterization.—This report by Burchell and his associates is based on 60 cardiac catheterizations on patients who presented problems in diagnosis. The method provides information as to (1) the parts of the heart, intrathoracic veins or great vessels that may be entered by the catheter and recognized roentgenoscopically, (2) the oxygen content of the blood from the parts catheterized and (3) the pressure in the chambers or vessels that have been catheterized. A fourth feature, the recording of intraventricular electrocardiograms, will eventually be incorporated into the routine catheterization procedure. Complete failure of the catheter to enter the thoracic cavity occurred once. In this patient the superior vena cava was apparently anomalous or obstructed. Partial failure, such as inability to get into the pulmonary artery, even when pulmonary stenosis was considered not to be present, or the inferior vena cava or the right ventricle, has been experienced in as high as 25 per cent of the patients with congenital cardiac lesions. The authors have found cardiac catheterization in congenital cardiac disease particularly helpful in (1) the differentiation of Eisenmenger's complex from pulmonary stenosis (tetralogy of Fallot), (2) the recognition of atrial and ventricular septal defects when the diagnosis was in doubt clinically, (3) the investigation for a patent ductus arteriosus when a typical murmur was absent and (4) the diagnosis of essential pulmonary hypertension. In patients with tetralogy of Fallot, the authors regard catheterization only occasionally indicated for diagnosis, because of expected difficulties in catheterization and because they have considerable confidence in the oximetric test during exercise. Catheterization is of value in any condition that may simulate congenital heart disease, such as essential pulmonary hypertension. It has a wide field of usefulness as a method to be utilized for clinical investigation, particularly when information on cardiac output in a steady physiologic state is wished.

Texas State Journal of Medicine, Fort Worth

44:413-484 (Oct.) 1948

Anesthesia Study Commissions. R. J. Whitacre.—p. 419.
Anesthetic Problems of a Doctor Doing General Practice. J. Pryor.—p. 422.
Scope of Plastic Surgery. T. G. Blocker.—p. 427.
Free Full-Thickness Buried Skin Grafts in Repair of Hernias. R. A. Richeson —p. 430.
Fascia-Lata Transplant in Regression of Retrotarsal Fat in Ophthalmosteresis. W. O. Murphy.—p. 435.
Nasal and Postoperative Tonsil and Adenoid Hemorrhage: Prevention and Control. C. E. Ball.—p. 437.
Treatment of Fractures in General Practice. L. C. Powell.—p. 440.
Diagnosis and Treatment of Protruded Lumbar Intervertebral Disks. C. D. Wilson.—p. 445.
Congenital Evisceration with Atresia of Colon. R. G. Lemon and J. N. Walker.—p. 449.
Congenital Fibrous Bands at Anorectal Line: Possible Etiologic Factor in Colic and Constipation. J. M. Coleman.—p. 454.
Salpingiosis (Endosalpingiosis): Case Report. Evelyn Gass Powers and O. N. Hooker.—p. 457.
Reevaluation of Low Cervical Cesarean Section. R. P. McDonald.—p. 460.
Foreign Body Reaction to Sutures and Other Materials. S. A. Wallace and K. L. Brown.—p. 463.
Translocation of Body Fluids in Chronic Disease. E. B. Hay.—p. 467.

West Virginia Medical Journal, Charleston

44:265-292 (Oct.) 1948

Pharmacology of Antihistaminic Agents. D. F. Marsh.—p. 265.
Hypertension Today (Part II—The Rice Diet). M. Koenigsberg.—p. 269.
Medical Potpourri. L. R. Lambert.—p. 279.
Some Practical Considerations in Use of Chemotherapy and Antibiotics in Treatment of Upper Respiratory Infection. H. M. Goodyear.—p. 284.

44:293-324 (Nov.) 1948

Surgery in Infancy and Early Childhood. B. Bradford Jr.—p. 293.
*Diagnosis of Acute Poliomyelitis. M. B. Kehoe.—p. 299.
Hypertension Today (Part III—Low (200 mg.) Sodium Diet). M. Koenigsberg.—p. 302.
Dermatoses of Allergic Etiology. J. W. Thomas.—p. 308.

Diagnosis of Acute Poliomyelitis.—Kehoe shows that poliomyelitis may present difficulties in diagnosis. Among 100 patients admitted to a hospital for crippled children with a presumptive diagnosis of poliomyelitis, the diagnosis was established in 77, whereas the other 23 were subsequently proved to have other diseases. There is no single pathognomonic element of history, symptom, sign, physical or laboratory observations which will offer a positive diagnosis of acute anterior poliomyelitis. Accurate history, a thorough physical examination and good clinical judgment must all be combined to make the diagnosis. However, cervical rigidity, muscular weakness or paralysis, muscular soreness and loss of deep tendon reflexes in the involved areas are among the most significant findings which must be sought, together with the lesser pathognomonic findings of moderate temperature elevation, headache, irritability, nausea, vomiting and constipation. A series of symptoms found in many acute diseases but rarely in poliomyelitis is listed.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

21:481-530 (Oct.) 1948

*Observations upon Lymphopenia of X-Ray Irradiation. C. H. G. Price.—p. 481.
Surface and Emergent Doses in Radiotherapy. J. R. Clarkson and R. J. T. Herbert.—p. 494.
Radiotherapy in Dermatologic Conditions. R. T. Brain.—p. 501.
Penetrating Ulcer of Descending Duodenum with Severe Secondary Anemia Caused by Foreign Body. A. Elkeles.—p. 508.
Note on Apparatus for Angiocardiography. T. H. Hills.—p. 511.
Observations on Certain Congenital Abnormalities of Hand in African Natives. J. H. Smitham.—p. 513.
Gastric Varices. E. Samuel.—p. 519.
Appendix Situated Within Thorax. R. Fawcitt.—p. 523.
Appendiceal Calculus. G. R. Airth.—p. 526.

Lymphopenia of Roentgen Irradiation.—Price presents an analysis of the hematologic data collected during the treatment of a group of 16 women with 200 kilovolt roentgen rays. The observed response of the lymphocytes was characteristic in type and can be correlated with the integral dose. The major change in the total lymphocyte count takes place during the early part of a course of treatment. It may be the result of the direct action of the radiation, and the drop in the total lymphocyte count due to this is large and relatively rapid. The further drop in the total lymphocyte count which takes place in addition to this may be due to the indirect action of the radiation, which effect tends to diminish as the dose of radiation increases. Eventually, a stage is reached at which further irradiation, at the rates of dosage here considered, causes only a very small change in the total lymphocyte count.

Edinburgh Medical Journal

55:449-512 (Aug.) 1948

Arterial Embolism. J. R. Learmonth.—p. 449.
Comparison of Maternity Hospital Records During Last Twenty Years as Basis for Thoughts for Future Improvement of Midwifery. W. F. T. Haultain.—p. 463.
Infantile Cerebral Hemiplegia—Clinical Features and Pathologic Anatomy. R. M. Stewart.—p. 488.

Transactions Royal Soc. Trop. Med. and Hyg., London

42:105-206 (Sept.) 1948. Partial Index

*Pulmonary Schistosomiasis. M. Erfan.—p. 109.
Observations on Development of Resistance to Vivax Malaria. C. R. B. Blackburn.—p. 117.
Treatment of Epidemic Typhus with Chloromycetin. E. H. Payne, E. A. Sharp and J. A. Knaudt.—p. 163.
Mite Typhus Fever in Assam and Burma, 1944-1946. P. H. A. Willcox.—p. 171.
Fatal Case of Generalized Amebiasis Due to Protozoon Closely Resembling, if not Identical with, Iodamoeba Bütschlii. E. H. Derrick and C. M. Wenyon.—p. 191.

Pulmonary Schistosomiasis.—According to Erfan pulmonary schistosomiasis occurs in the early stage of schistosomal infection, during the passage of cercaria through the lungs and in the late stage from the deposition of ova and worms. The author describes the form due to the deposition of schistosome ova and worms in the lungs. In Egypt, 60 to 70 per cent of the inhabitants are infected with schistosomiasis which is pulmonary in at least 33 per cent of these. The disease affects males more often than females and is most common in children and young adults, the highest age incidence being between 10 and 30 years. It is a disease of agricultural workers. Two forms of pulmonary schistosomiasis can be recognized, bronchopulmonary and cardiovascular. In the bronchopulmonary form the pathologic lesions are in the bronchioles and alveoli. Clinically, these manifest themselves in the form of bronchial asthma, chronic bronchitis, bronchiectasis, pulmonary emphysema and pulmonary fibrosis. In the cardiovascular form the pathologic lesions are primarily in the pulmonary arterioles and, secondarily, in the pulmonary artery and its branches and in the right ventricle. The clinical picture of this form is similar to that of primary pulmonary endarteritis or Ayerza's disease. However, cyanosis, which is the most striking feature of Ayerza's disease, is absent in pulmonary schistosomiasis, and appears only when the right ventricle has failed. Early treatment with antimony compounds is important. In cases of advanced disease with enlargement of the right ventricle, they must be used with caution, as they are toxic to the myocardium. They are definitely contraindicated when the right ventricle has failed. Heart failure is treated on ordinary lines with digitalis, venesection and mercurials.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

92:2957-3048 (Sept. 25) 1948. Partial Index

*Treatment of Ventricular and Duodenal Ulcers with Succus Liquiritiae. F. E. Revers.—p. 2968.

Results of Streptomycin Treatment in 19 Patients with Influenzal Meningitis: Comparison with Earlier Results. W. J. Bruins Slot, L. A. Hulst and H. W. Stenvers.—p. 2973.

Urea Culture Medium as Aid in the Routine Examination of Feces and Urine for Typhoid, Paratyphoid and Dysentery Bacteria. J. A. de Nooy.—p. 2989.

Determination of Prothrombin Time During Treatment with Dicumarol. T. Strengers and H. H. Lindeboom.

Treatment of Gastric Ulcer with Licorice Extract.—Revers says that two years ago he first reported on the administration of succus liquiritiae (licorice extract or glycyrrhiza extract) to patients with gastric and duodenal ulcers. A paste-like consistency of the extract is obtained by mixing 100 Gm. of glycyrrhiza extract in powder form with 50 Gm. of water. The patient with ulcer takes a teaspoonful of this paste three times a day. On the assumption that it exerts an influence on the wall of the stomach, the paste is given when the stomach is empty, that is, in the morning about an hour before breakfast, about half past 11 o'clock in the morning and in the evening before going to bed. In 27 of 48 patients treated in this manner the symptoms subsided between the first and fourth days; in 10 others between the fourth and eighth days, and in 6 others somewhat later. In 5 of the 48 patients the treatment remained ineffective. Favorable results were obtained with the glycyrrhiza extract also in patients with gastritis. Edema of the face and of the extremities developed in some of the patients during treatment, and these patients often complained of severe headaches, pressure in the chest and abdominal pains. Pharmacologic studies have demonstrated the presence of a spasmolytic substance in the drug.

Presse Médicale, Paris

56:753-768 (Oct. 30) 1948

*Glycemia in Diabetic Coma. R. Boulin.—p. 753.

Continued Prolonged Treatment of Amebiasis. Coumel, Molinier and Pedoya.—p. 754.

*Cyclic Desquamation of Epithelium of Urinary Passage in Relationship with Menstrual Cycle. L. L. Wasserman.—p. 755.

Glycemia in Diabetic Coma.—Boulin determined the glycemia in 81 patients with diabetic coma. At the onset of the coma the sugar in the blood varied from 1.11 to 12.20 Gm., and its average was 4.59 Gm. In 2 patients the amount varied from 1.20 to 2 Gm., and in 2 additional patients it varied from 1 Gm. to 1.20 Gm. and was therefore practically normal. These latter cases of diabetic coma in the absence of hyperglycemia justify the intravenous administration of isotonic dextrose solution. This technic does not present any inconvenience with regard to diuresis. Amounts up to 596 Gm. of isotonic dextrose solution have been administered intravenously without untoward reaction. The blood sugar tends to increase in proportion to the tendency of the alkaline reserve to decrease. The amount of insulin required does not correspond to the blood sugar level at the onset of the coma. Considerable amounts of the drug may be administered safely during the first six hours after the initiation of the treatment because hypoglycemia does not occur during this period, but from then on hypoglycemia may be latent and may be manifested up to the seventy-second hour when the patient has practically recovered and no longer receives insulin except for small doses at long intervals. The blood sugar level should be determined every three hours during the period of treatment with insulin.

Desquamation of Epithelium of Urinary Passage.—Wasserman observed on examination of the urinary sediment in 30,000 cases that there is no relationship between the intensity of the desquamation of the epithelium of the urinary tract and the course of or recovery from an inflammatory process localized in the pelvis of the kidney, ureters or urinary bladder. There is little desquamation of the epithelium of the urinary tract in men. This desquamation varies considerably in women because of its relationship with the cyclic activity of the ovaries. There was little desquamation in a group of 11 girls between the ages of 1 to 7 years. In a second group of 28 girls between the ages of 9 and 15 years there was little desquamation in those who did not menstruate. Menstruation was preceded by considerable desquamation, which was restored to normal the moment that menstruation started. The menstruation was preceded likewise by a period of considerable desquamation for four to eight days in a group of 20 young women between the ages of 16 and 23 years; desquamation was restored to normal with the onset of menstruation. In a group of 10 women between the ages of 57 and 76 years the slight desquamation observed was similar to that in the girls between the ages of 1 and 7 years. In women desquamation of the epithelium of the urinary tract is diminished before the beginning of the secretory activity of the ovary and is diminished after the establishment of the menopause.

Rivista dell'Istituto Sieroterapico Italiano, Rome

23:73-128 (April-June) 1948. Partial Index

*Fuchsin in Therapy of Cholera. A. Castellani.—p. 73.

Fuchsin in Therapy of Cholera.—Castellani found that basic fuchsin kills Vibrio comma organisms without desintegrating them. It is well tolerated by men and animals and it retains its bactericidal and bacteriostatic power on V. comma even when dissolved in liquids containing pepsin and other enzymes or proteins. Basic fuchsin, in doses of 0.10 Gm. with intervals of ten minutes, up to a daily dose which varies between 1 and 2 Gm., if administered after appearance of diarrhea in cholera and preferably before appearance of vomiting, will control an attack of cholera. Basic fuchsin can be given orally in capsules or pills. The author reports a cure of all patients who had this treatment.

Schweizerische medizinische Wochenschrift, Basel

78:1049-1076 (Oct. 30) 1948. Partial Index

Surgical Treatment of Congenital Cardiac Defect, Particularly of Morbus Caeruleus. M. Grob.—p. 1049.

Angiocardiography in Congenital Cardiac Defects. E. Rossi and A. Prader.—p. 1054.

Queenslandfever-Endemia in Bremgarten (Canton Aargau). V. Gutscher and K. Nufer.—p. 1064.

*Substances Preventing Coagulation of Blood. Contribution to Problem of Thrombosis. Z. Horn and L. Borsodi.—p. 1069.

Substances Preventing Coagulation of Blood.—Experiments carried out by Horn and Borsodi with fresh oxalated plasma of normal persons demonstrated that the thrombokinase is capable of inactivating the heparin and occasionally the antithrombin. But only one part of the total heparin may be adsorbed or become closely attached chemically, while the other part may still be circulating in the blood in a form that may be disposed of. Additional experiments showed that toluidine blue prevents the conversion of prothrombin into thrombin. Experiments with the plasma of 11 patients with thrombosis demonstrated that in the plasma of 9 of these patients the time of the separation of the fibrin by the action of the thrombin was not shortened by the thrombokinase or by the toluidine blue, suggesting that the heparin in the form that can be disposed of may be missing in the blood of patients with thrombosis. The absence of this part of the heparin in the blood does not present the only cause of thrombosis, but it may be considered as one of the predisposing factors. Another one is the reduction of the antithrombin content of the blood, which results in a reduced capacity of the serum to dissimilate the thrombin. This capacity depends not only on the antithrombin content but also on the presence in the serum of an activating factor of enzymatic character. It is likely that the latter factor compensates for the effect of the substance which converts the thrombin. It is suggested that for the causation of thrombosis there may be necessary the concurrence of the predisposing and of other factors such as the lability of the vegetative system and the effect of temperature on the coagulation.

Book Notices

Deafness, Tinnitus, and Vertigo. By Samuel J. Kopetzky, M.D., F.A.C.S., Director of Department and Professor of Otolaryngology, New York Polyclinic Medical School and Hospital, New York. Cloth. Price, $7.50. Pp. 814, with 31 illustrations. Thomas Nelson & Sons, 385 Madison Ave., New York 17, 1948.

Any work by this distinguished otologist deserves the attention of all who are interested in the field of deafness and related subjects.

There is much which is factual in this book and a great deal which is theoretic. Thus the chapters on anatomy and physiology are not of a controversial nature and can be read with benefit to all. The essence of the author's theme is that in most cases of deafness, tinnitus and vertigo there is altered chemical composition of the blood due to a dysfunction of the enzymatic interplay. This is not presented as an entity justifying itself but as a key to purposeful therapy.

According to the author there are three types of deafness; congenital, nonprogressive and progressive deafness. He is primarily concerned with the latter type, and as regards progression of deafness makes this statement: "The prime agent in the production of the phenomenon of progressive loss of hearing is the same in all types of cases, the pertinent factor being dysfunction of the conduction and the acoustic perception mechanisms."

Biochemical studies of the blood in these latter cases show, in most, hypercalcemia and hypocalcemia, hypercholesteremia and vitamin B deficiencies. In many of the patients whose histories give evidence of vestibular disturbances there is also evidence of hypoproteinemia or hypoalbuminemia. Finally, approximately one quarter of the cases present, among other abnormalities in the chemistry of the blood, degrees of hypoglycemia.

Depending on the observations in the general physical examination, the examination of the ears and adjacent structures and the biochemistry of the blood, therapy is then predicated on specific indications. It comprises surgery when it will remove existing pathologic impedimenta to sound wave transmission to the end organ. The reader will be surprised to see that the freeing of intratympanic adhesions is more favorably considered than the fenestration operation, which receives remarkably short shrift. Jacobson's solution, histamine desensitization, diathermy and pneumomassage are recommended in selected cases, as is the currently prevalent radium therapy to the nasopharynx, and the unprevalent operation of incising the tendon of the tensor tympani muscle. When the local pathologic change is the result of systemic disease or dysfunction of the neuroglandular or endocrine system medical therapy will be required. Thus, depending on blood chemical findings, diets may be employed as in cases with an excess of urea nitrogen or uric acid, or when there is hypoglycemia. Vitamins are abundantly used, principally A for its relationship to urea clearance and hypercholesteremia and B for its effect on carbohydrate metabolism. In addition, amino acids, minerals and hormones, principally thyroid, estrogens and testosterone, are often used.

No practicing otologist could do else but joyfully welcome a physiologically based and practically successful method of therapy of these distressing conditions, for which actually little has heretofore been offered. If the author's findings are corroborated by other clinics and investigators, this may be an epochal work. But the method of approach as here presented is so new and factual laboratory findings so interwoven with theoretic considerations, that most careful workers will wish more factual evidence of the efficacy of this purposeful therapy. For the great and glaring weakness of the book is that there is no proof that this detailed biochemical humoral medical therapeutic approach actually accomplishes anything, though the author states that of 167 treated patients approximately 85 per cent had improved hearing acuity and reported lessened tinnitus. There is in this entire book but one audiogram purporting to show improved hearing after almost a year of the author's type of therapy, and this one audiogram is itself open to critical doubt as to whether the gain shown is significant or meaningful.

On Hospitals. By S. S. Goldwater, M.D. [Collected Works.] Cloth. Price, $9. Pp. 395, with 34 illustrations. Macmillan Co., 60 Fifth Ave., New York 11, 1947.

This book is a collection of selected material from the many writings of the late Dr. S. S. Goldwater, whose accomplishments in the field of hospital administration and hospital planning gained worldwide recognition. For the convenience of the reader, the material has been arranged in five main sections, each representing a group of closely related subjects. The first section is concerned with hospital administration and organization and deals primarily with the function and duties of the hospital administrator. The organization of the medical staff is the main topic of the second section, which also describes the mutual responsibilities and interrelationships of the hospital and the staff physicians. In the third section the relationship of the hospital to the community as a whole is clearly interpreted. This concerns also the functions of the controlling board and the opportunities and responsibilities that come to those who are privileged to serve as hospital trustees. The principles of hospital planning are described in the fourth section, while in the fifth are detailed descriptions and outlines of representative hospital plans.

The book is a valuable addition to the literature of the hospital field and will serve as a convenient and authoritative reference for hospital administrators and consultants, students of hospital administration and other personnel interested in the planning, organization and maintenance of hospital service.

The Salicylates: A Critical Bibliographic Review. By Martin Gross, M.D., Research Assistant (Assistant Professor), Laboratory of Applied Physiology, Yale University, New Haven, Connecticut, and Leon A. Greenberg, Ph.D., Associate Professor, Applied Physiology, Yale University. With an introduction by Howard W. Haggard, M.D., Director, Laboratory of Applied Physiology, Yale University. Monographs of the Institute for the Study of Analgesic and Sedative Drugs, II. Cloth. Price, $6. Pp. 380, with 20 illustrations. Hillhouse Press, 432 Temple St., New Haven 11, Connecticut, 1948.

This book, the second in a series of monographs of the Institute for the Study of Analgesic and Sedative Drugs, is surely the most exhaustive critical bibliographic review of the salicylates that has ever been attempted. In his introduction to the book, Dr. Haggard says that the entire pertinent literature was reviewed in the original journals except for instances in which certain wartime issues of some foreign language journals were available in abstract only; however, the number of indicated abstract sources among the more than 4,000 references in the bibliography is extremely small.

The subject is presented under the following headings: historical; occurrence and properties of salicylates; the fate of salicylates in the body; pharmacology and toxicology of salicylates; therapeutic uses; salicylate poisoning, and the question of addiction or habituation. Of the 380 pages in the book, 193 are devoted to text, 174 to the bibliography and author index and 13 to the index of subjects.

This book will serve a useful purpose not only in bringing to hand the literature but in pointing out desirable lines of investigation and guiding away from duplication of study. More reviews of this nature are certainly to be desired in many pharmacologic fields.

Hungerkrankheit, Hungerödem, Hungertuberkulose: Historische, klinische, pathophysiologische und pathologisch-anatomische Studien und Beobachtungen an ehemaligen Insassen aus Konzentrationslagern. Von A. Hottinger et al. Mit Vorwort von Oberst K. Kistler, Kommandant der Militärsanitätsanstalt 4, Zurich. Cloth. Price, 8.50 Swiss francs. Pp. 297, with 171 illustrations. Benno Schwabe, Klosterberg 27, Basel, 10; Imported by Grune & Stratton, Inc., 381 Fourth Ave., New York 16. 1948.

Of all the evil fruits of war none is more certain—or more tragic—than famine. In World War II there was more systematic starvation than heretofore. In Germany it was organized into concentrations of misery with addresses like Belsen, Dachau, Buchenwald, Mauthausen and Auschwitz. Toward the end of 1944, however, the walls began to crack and an increasing trickle of human wreckage fled, or more often crawled, in search of food and help. The few who reached Switzerland found both in such frontier hospitals as at St. Gallen. With the final Nazi collapse the Swiss organized their Military Hospital in Herisau to accept some of the overflow from the flood which was engulfing France. The present book presents the findings and experiences obtained with 349 patients.

The book begins, appropriately, with a short but interesting historical essay on famine (by Salzmann). A group of chapters ("Klinische Kasuistik," by Hottinger) presents the general picture and the manifold complications of semistarvation and intercurrent disease. Numerous photographs intensify the vivid descriptions and fairly detailed case histories. The chapters (by Gsell) on the physiology and pathogenesis of "hunger disease" and hunger edema attempt a more scientific examination of the phenomena and the fundamental relationships. The difficulty of separating variables and achieving a rigorous analysis with the Swiss material will be appreciated when we note the heterogeneity of Gsell's patients. There were 24 males and 29 females, covering all ages except childhood, and their histories were very diverse; almost half of them (22) died in spite of good medical care. Ninety per cent of the patients at St. Gallen suffered from severe infections, often multiple, and only 1 patient was free from secondary infection. With such material, without adequate prestarvation standards, cause and effect are intermingled and precise analysis is impossible in terms of either basic mechanisms or statistical significance.

The pathologic anatomy seen in 53 autopsies, covering the age range from 11 to 90 years, is presented in 65 pages (by Uehlinger). The method is primarily descriptive, and quantitative measurements are given as examples. In this section, as elsewhere, in the book, we could wish for more systematic organization of quantitative data. The last section of the book, 50 pages on tuberculosis (by Labhart), conforms to the same general type of data and presentation. The great importance of tuberculosis in these patients is seen in the fact that the disease affected almost half of all patients at Herisau. Uncertainties of classification may explain discrepancies such as the statement on page 247 that there were 117 active cases and the summary statement that there were 124 active and 27 inactive cases of tuberculosis in the 296 patients at Herisau.

This book is the most ambitious recent attempt to review the subject of semistarvation. It does this successfully within the limitations of the classical clinical-pathologic approach. The paper, printing and binding are excellent, and this is important because the book, while not a classic, has permanent value.

The Venous Pulse and Its Graphic Recording. By Franz M. Groedel, *M.D., Attending Cardiologist, Beth David Hospital, New York.* Cloth. Price, $5.50. Pp. 223, with 121 illustrations. Brooklyn Medical Press, Inc., Box 99, Station H, New York 25, 1946.

The author has summarized in this monograph his observations of the venous pulse, and uses this as a basis for presenting some of his concepts. The booklet is beautifully prepared with clearly reproduced illustrations. This monograph is timely in bringing attention to a graphic method of heart examination which has been too much neglected recently. The literature is covered adequately and the text is profusely documented with illustrated case reports. The subject matter is divided into three sections: (1) Venous pulse, (2) the pneumocardiogram and (3) esophagocardiogram, and this is followed by an extensive bibliography. In the first and second sections, the author first develops the historical aspects and then describes the technic before considering the normal and abnormal configurations. The section on the esophocardiogram is rather brief.

It is regrettable that the subject matter at times becomes polemic, and that some of the concepts of the author will not have general acceptance. Nevertheless this book should be read by every cardiologist interested in obtaining a succinct summary of the author's contributions to this field.

The Illinois Hospital Survey and Plan. Illinois Department of Public Health, Roland R. Cross, M.D., Director. Paper. Pp. 179, with illustrations. Department of Public Health, Springfield, Ill., 1947.

This book contains the report of the Department of Public Health, designated by the Governor of Illinois as the state agency responsible for the study and planning of hospital facilities in accordance with the provisions of the Federal Hospital Survey and Construction Act. The specific plan for Illinois considers such factors as general hospital facilities and needs, tuberculosis sanatoriums, nervous and mental institutions, requirements for long term and convalescent patients, local health facilities, coordination of hospital services and the development of priority ratings for general hospital needs. Federal and state legislation pertinent to the hospital construction program is also described, as well as socioeconomic factors, population trends, transportation and communication facilities and the availability and distribution of professional personnel.

All who are interested in the planning and organization of hospital services will find in this book a wealth of information richly illustrated and supported by statistical tables and maps.

Modern Trends in Diagnostic Radiology. Edited by J. W. McLaren, M.A., M.R.C.S., L.R.C.P., Director, X-Ray (Diagnostic) Department, St. Thomas's Hospital, London. Cloth. Price, $12. Pp. 464, with 381 illustrations. Paul B. Hoeber, Inc., 49 E. 33rd St., New York 16, 1948.

This most welcome project contains a wisely selected series of contributions from scientists well qualified to write on the different aspects of the many advances in radiology. Scarcely a member of the medical profession could fail to find a lively interest and profit in perusing this book with particular reference to the chapters relating to his own special interest. The contribution of Baclesse, for interest, is an admirable consideration of the roentgenologic diagnosis of tumors of the pharynx and larynx such as can hardly be found in any other publication, certainly not in anything written in English. All through the book there are valuable chapters covering the newer phases of radiology in occupational disease, tumors, tuberculosis, sarcoidosis of the lungs, kymography and other methods in radiology of the heart; later developments in gastroenterology, renal tuberculosis, tumors of bone, spinal lesions, including disk pathology; the skull, including new developments in ventriculography, encephalography and cerebral angiography, and many other items of special interest. The book is a must for every radiologist.

Nuclear Radiation Physics. By *R. E. Lapp, Ph.D., and H. L. Andrews,* Ph.D. Cloth. Price, $6. Pp. 487, with illustrations. Prentice-Hall, Inc., 70 Fifth Ave., New York 11, 1948.

This volume is an outgrowth of an elementary manual written by the authors within the military establishment first on radiologic safety and later on radiologic defense. Nuclear physics is dealt with from the discovery of radioactivity by Becquerel, 1896, to the present time.

It is a well written text and contains many diagrams, tables and charts to supplement the information. One chapter is devoted to the makeup and function of the Geiger-Müller counter, which is one of the most important instruments used in the field. There is a chapter on health physics, written for a specialist skilled in protecting workers in atomic energy plants against stray radiation. Unless the general physician is fairly well versed in mathematics he is not likely to find the book easy reading. It is a textbook and not a popular treatise on the subject. Any one who has had a good course in college physics will enjoy working out the sample problems which are at the conclusion of each of the 18 chapters.

In view of the tremendous upsurge of the interest in biologic sciences in radioactive isotopes, this book is highly recommended to those physicians who are planning to specialize in the field.

Recent Advances in Surgery. By Harold C. Edwards, C.B.E., M.S., F.R.C.S., Surgeon and Lecturer in Surgery, King's College Hospital, London. Third edition. Fabrikoid. Price, $6.50. Pp. 437, with 131 illustrations. The Blakiston Co., 1012 Walnut St., Philadelphia 5, 1948.

The progress of surgery in all its branches has been outstanding during the past decade. In this small well written book Dr. Edwards and his collaborators attempt to summarize these advances and to make them readily available to the busy surgeon and general practitioner. The book is divided into six parts covering, among others, the following subjects: general considerations, alimentary tract, thorax, nervous system, blood vessels, ductless glands, sex hormones and cancer and radiotherapy in malignant disease. Cardiac pain, water balance, burns, postoperative pulmonary complications, anesthesia, aseptic anastomosis, vagotomy, physiologic gastrectomy, intravenous clotting and vascular injuries are a few of the subjects given special consideration. A number of illustrative drawings, diagrams and photographs are well distributed throughout the book. Good bibliographies are appended to each chapter.

The author has made an earnest attempt by digestion of a great deal of literature to keep the reader abreast of the times and present day surgical opinion.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

DEATH DURING ANESTHESIA

To the Editor:—This report is sent to you so that we may gain some information as to the cause of death. The child, aged 7, was seen three times one month previous to her admission to the hospital. She was in excellent physical condition and the only complaint was recurring tonsillitis. She was admitted to the hospital the morning of surgery, Aug. 31, 1948, without having taken food or water. Preoperative medication, 1/12 grain (5 mg.) morphine sulfate and 1/200 grain (0.3 mg.) atropine, was given about twenty minutes before surgery. An induction anesthetic of a small amount of ethyl chloride, followed by ether, was administered. The right tonsil was removed without bleeding; the left tonsil was removed and a hemostat was clamped on a small mucous membrane area of bleeding. At this time, possibly five minutes after complete anesthesia was obtained, the child's respirations became slow, possibly 8 to 10 a minute, pupils were dilated, the surface temperature was cold to touch and cyanosis was absent. Immediate attempts at resuscitation were given, including oxygen and carbon dioxide, nikethamide 1 cc. subsequently and 1 cc. in the heart muscles, and 1 cc. of epinephrine into the heart muscles and rectal dilation. Pulse was not obtained after the downward course started. Heart tones were questionable. After about forty minutes all attempts were abandoned, and the child was pronounced dead. Bleeding and coagulation time, August 27, was 4½ minutes. A chest and head autopsy was performed that evening. The report from the pathologist revealed definite tracheobronchitis. The death certificate was signed "cause of death undefined, occurring during anesthesia for T and A."

John B. Porter, M.D., Longview, Wash.

Answer.—Such an experience requires the consideration of several details concerning the preoperative medication as well as the administration of the ether anesthetic.

One-twelfth grain of morphine sulfate is a large dose for a child 7 years of age, assuming that she weighed about 45 to 50 pounds (20.4 to 22.7 Kg.). The full effect of this dosage could have been obtained at about the time the crisis occurred. However, the picture is not that of morphine poisoning alone, although observation of the pupils during the early stage of the induction of anesthesia would have given good evidence of a morphine effect had they been constricted. The dose of 1/200 grain of atropine (sulfate) was also a large dose for such a child, but it would probably be more likely that the widely dilated pupils were due to deep anesthesia.

The tracheobronchial findings at autopsy seem to verify the impression given on the death certificate, and in addition it might be added that the tracheobronchitis described was probably due to overconcentration of ether. Inasmuch as these findings were not localized in the posterior wall of the trachea, it might be assumed that accidental spilling of the ether into the trachea did not occur. This could have been a possibility if there were any unusual movement on the part of the patient or anesthetist. If the anesthesia was administered by a standard type anesthesia machine, it is a common experience that even though the ether is turned off, ether vapor continues to be supplied to the patient because the warming device causes continued vaporization of the ether. In order to make sure that the patient does not continue to inhale the ether vapor, the tube has to be entirely removed from the patient's mouth.

The autopsy findings seem to reveal more evidence of local reaction in the bronchioles and bronchi than could possibly be accounted for on any other basis than an external irritant. It would be interesting to know whether any one attending the operation would remember whether the patient was lying rotated more toward her right side just before the respirations slowed; e. g., when the operator was removing the right tonsil. If she was, this might explain how liquid ether could have caused greater damage to the right lung.

It would seem that ether was inadvertently aspirated by the patient or introduced accidentally while rotating the patient during administration of the anesthetic.

BLOOD SUGAR TEST

To the Editor:—Please give information as to technic of blood sugar tests using only 1 drop of blood. J. A. Speight, M.D., Rocky Mount, N. C.

Answer.—One of the widely used micro blood sugar methods is that of Folin and Malmros (*J. Biol. Chem.* 83: 115 [1929]), which was designed for 0.1 cc. of blood but which may be modified for 0.025 cc. of blood by merely reducing the amount of the protein precipitant, tungstic acid, from 10 cc. to 5 cc. This is the same amount of blood that is used for most hemoglobin methods. The results are reliable, but care must be taken in measuring out such a small amount of blood. Normal values by this method range from 75 to 100 mg. per hundred cubic centimeters of blood. If finger tip blood is used, the results will resemble venous blood only in the fasting state, since the former is mainly arterial blood. Following meals or during glucose tolerance tests, higher values will be obtained for finger tip blood than for venous blood.

EDEMA THROMBOPHLEBITIS

To the Editor:—In a married woman aged 69 years, thrombophlebitis of the right leg developed on September 14 without fever. She has been in bed since. She is free from pain, but the swelling remains. How soon should she be permitted to sit up or move about? What will facilitate the reduction of the swelling? Her history shows the following events in the past: thyroidectomy for toxic goiter in 1928; pernicious anemia since 1933; cerebral embolism, 1942, and cerebral hemorrhage, 1947. Her blood pressure is 130.

M.D., Pennsylvania.

Answer.—Although there is some difference of opinion relative to the length of time which a patient should be kept in bed after an attack of acute thrombophlebitis, most feel that it is unwise and unnecessary to keep patients in bed longer than eight to ten days provided that significant evidence of extension of the thrombophlebitis is absent. Although the inquiry does not state whether the phlebitis affected the superficial or the deep veins, it is assumed that the deep venous system was involved. The distinction is made chiefly because superficial phlebitis, unless it occurs in varicose veins, may be a manifestation of cancer and necessitates careful search for cancer, particularly of the pancreas, stomach and lung.

Almost invariably edema which follows acute thrombophlebitis may be made to disappear by elevation of the extremity when the patient is in bed. The problem which remains is that of adequate control of the swelling, not because the swelling itself is of significance, but because it is a manifestation of impaired venous circulation which usually leads to such complications as varicose veins, stasis dermatitis and ulceration. The measure of adequate support is its effectiveness in controlling swelling. In some instances this may be accomplished by the use of elastic bandages; in other instances the use of pure gum rubber bandages (Davol Rubber Company, Providence, R. I.) 3 inches (7.6 cm.) wide and 15 feet (4.57 meters) long is advisable. In any event, the bandages are applied like puttees and are worn during activity. There is no need for the application of bandages during sleep. The patient should go without the bandage one day out of each month and continue its use only if edema results. In more than half of all instances of deep thrombophlebitis it is possible to discontinue the use of a bandage within three to six months.

PURPURA SIMPLEX

To the Editor:—Patients are occasionally seen whose most characteristic finding is that of extensive subcutaneous hemorrhages or ecchymoses. Often a determining factor cannot be observed, or the hemorrhage appears to be much more extensive than such a cause would indicate. The literature fails to explain this phenomenon, which is presumably related to the purpura. Please give information relative to this problem.

M.D., Illinois.

Answer.—It is assumed that this question refers to persons who manifest purpura over a period of years without other evidence of a bleeding tendency and who have no other signs of disease of the blood or blood vessels. The bleeding and clotting time, clot retraction and the platelet count are normal. In these patients the purpura is apparently the result of abnormal fragility of the smaller blood vessels. Atropine, bismuth, chloral hydrate, mercury, acetophenetidin and the salicylates have been reported to cause such a condition. When there is associated hemorrhage into the bowel, joints or elsewhere the condition is classified as Schönlein-Henoch's purpura and is thought to be allergic in nature.

Although it is possible that a deficiency in vitamin D may be related to such states, this has not been established. Many cases fall into the group recently described by Davis (*Lancet* **1**:145, 1941) as "hereditary familial purpura simplex," occurring particularly in women at the climacteric.

From the diagnostic point of view it is important to demonstrate that the clotting mechanism is normal. If the condition is chronic and the patient otherwise healthy the patient can be assured that the prognosis is entirely good. No effectiv therapy is known.

DIFFERENTIAL DIAGNOSIS IN BONE LESION

To the Editor:—A 20 year old female graduate nurse first noted onset of headaches in December 1947 at the same time that she discovered a depression in the left parietal bone. About five months previously she had bumped her head on a bed post in the region of the depression. The trauma had been regarded as trivial. Three months later severe headaches returned, localized in the left side of the head and radiating from the eye backward to the neck. Vision, position sense and gait are unaffected. One and one-half years ago she had pain in the left leg in the region of the patella accompanied by a slight effusion in the knee joint. Roentgenograms of the lower part of the back, the pelvis and the legs at that time were normal. With infra-red treatments this cleared promptly but six months ago the right leg began to "burn" from hip to foot on the anterior surface. Numbness and back pain are absent. Symptoms are worse during rainy weather. The patient is moderately obese. There is a circular depression about the size of a quarter and with a tender edge in the left parietal bone. Physical condition otherwise is within normal limits. Blood chemical and serologic data are within normal limits. Complete skeletal roentgenograms including the sinuses are normal except for the skull: In the left parietal region, there is a large area of bone destruction which measures 5.5 cm. in its maximal diameter. It is irregular in its outline and involves both the inner and outer tables of the skull. This is consistent with a primary tumor, probably an eosinophilic granuloma. A biopsy was taken from a representative area. It showed only minute fragments of normal bone and fibrous tissue—no evidence of eosinophilic granuloma. In view of the negative biopsy, should the patient be subjected to x-ray therapy?

M.D., New York.

Answer.—Any causal relation with the vague remembrance of trivial trauma may be discarded at once. Any connection between the local skull findings and the pain in leg, patella and knee joint in the face of prompt recovery and negative roentgenologic findings likewise is lacking. The negative findings (complete skeletal) reported of the roentgen examination as to any pathologic changes anywhere except the area of bone change in the parietal region are helpful in possibly eliminating a diagnosis of osteitis fibrosa cystica, multiple myeloma or multiple metastatic growths in the bones. Without histologic evidence of eosinophilic granuloma the diagnosis might narrow down to fibrous dysplasia of bone, Hand-Schüller-Christian disease or an as yet early myeloma. In Albright's syndrome there may be sexual precocity and usually pigmentation of the skin, which points are not mentioned in the query. A differential diagnosis might include simple cystic disease of bone, hyperthyroidism, neurofibromatoses (von Recklinghausen's disease), dischondroplasia (Ollier's disease), Hand-Christian-Schüller disease, early osteitis deformans (Paget's disease), osteoid osteoma, or a malignant (metastatic) bone lesion; multiple myeloma might be eliminated by sternal aspiration and cell study—with a nonresistant sternum on puncture and myeloma cells in the marrow material.

The inquirer might look for pigmented skin spots, for high blood urea; he should repeat study of skeletal bones to establish fibrous dysplasia of bone and enquire about history of renal colic or calculi found in hyperparathyroidism. Also he may search in the neck for nodules in the thyroid area and inquire about polydipsia or polyuria or absorption of the lamina dura shown by dental films. He may repeat studies of the blood serum calcium looking for higher ratios. It is said that a high total blood protein may explain a high blood calcium due to myeloma or sarcoidosis rather than parathyroid disease.

From the amount of pain mentioned one must consider osteoid osteoma, which is usually painful and contains multinucleated giant cells and irregularly calcified osteoid tissue. To date no one has reported an instance in the cranium.

In Schüller-Christian disease there may be pigmentation and polydipsia and often exophthalmus with diabetes insipidus along with calvarial defects and a finding of eosinophils locally in the bone lesions. Ackerman reported involvement of the diaphragm in a case. Most of the instances are multiple bone lesions with histologic changes characteristic of eosinophilic granuloma.

Consultant's advice should be sought, bearing in mind some of the mentioned points in additional examination. On the facts given, prognosis is good.

PROTEIN-BOUND IODINE

To the Editor:—Does administration of iodine, such as by medication or in the Graham Cole test, influence the level of protein-bound iodine in the blood so as to confuse the diagnosis of hyperthyroidism?

M.D., California.

Answer.—The administration of iodine does raise the level of protein-bound iodine. As a result, the determination of protein-bound iodine is not of much value in patients who have been receiving iodine. Data are not available concerning the influence of iodine in the dye used for the Graham Cole test.

PSORIASIS OF SCALP

To the Editor:—Has any satisfactory therapy been developed for psoriasis of the scalp?

Willis P. Baker, M.D., Santa Ana, Calif.

Answer.—For large numbers of cases, the lesions on the scalp, as elsewhere on the skin, can be entirely cleared or improved. The scalp in chronic or inveterate psoriasis is a site particularly resistant to treatment. Some of the more effective agents, such as chrysarobin and tar, which may be useful elsewhere, are withheld from the scalp. Ordinarily, local treatment of psoriasis of the scalp consists of 5 to 10 per cent of ammoniated mercury ointment with or without the addition of 3 to 5 per cent salicylic acid. A water-miscible base is advantageous toward easier removal by washing. If parts other than the scalp are involved, they should receive appropriate therapy simultaneously. The general momentum acquired by improvement of the less resistant areas seems to carry over to those where more difficulty is commonly encountered. It may even be worth while to get movement away from dead center by the use of roentgen exposures. This should be done cautiously, only by the expert and as an initiating measure. These precautions are necessary to prevent loss of hair, which might result after injudicious use of this modality. Ultraviolet rays, on the other hand, are safe. The face, though, should be protected, because it is much more sensitive to their effects than is the scalp. Systemic treatments, each of which is helpful at times, should be given in conjunction. Any attention which will improve the physical background of the patient, such as treatment of associated anemia, should redound to the benefit of the scalp condition. While no efficient revolutionary remedies have been introduced recently, by and large, a skilful practitioner can achieve satisfactory results in the large majority of patients with psoriasis.

FRACTURES AND CALCIUM METABOLISM IN THE AGED

To the Editor:—Would the frequent fractures of the hip in older persons be prevented by a daily intake of milk calcium throughout life?

Anna E. R. Robinson, M.D., Brooklyn.

Answer.—The American diet is probably more often deficient in calcium than in any other chemical element. Among elderly persons (women more than men) senile osteoporosis is frequently found. Frequent hip fractures encountered in older persons may be due to prolonged suboptimal intakes of calcium. The Food and Nutrition Board of the National Research Council recognizes that a liberal amount of calcium is necessary in the diet. The recommended allowance of calcium for adults has been increased from 0.8 to 1.0 mg. per day. Diets containing little or no milk will probably be deficient in calcium.

Dr. F. J. Stare has said, "It was a surprise to see that the majority of roentgen studies on adults past the age of 45-50 years showed considerable demineralization of bone, and one wondered whether low dietary intake of calcium or of vitamin D, over many years, might not have been prominent causative factors in the demineralization." Calcium metabolism in the adult proceeds slowly. If the diet contains an inadequate amount of calcium the blood will take the needed amount from the bones, thus significantly weakening them over a period of years.

A liberal daily source of calcium continued throughout life should tend to minimize demineralization of the bones and consequently reduce the number of fractures prevalent in older persons.

DIPHENYLHYDANTOIN SODIUM IN PREGNANCY

To the Editor:—1. Is there a contraindication to the use of "dilantin sodium" (diphenylhydantoin sodium) during pregnancy?

2. In a patient with migraine, who is pregnant, is "gynergen" (ergotamine tartrate) contraindicated at all times, or is there less risk in the first trimester?

M.D., Massachusetts.

Answer.—1. Reactions to diphenylhydantoin sodium may occur in any group of cases, and therefore its use should be begun with caution whether the patient is pregnant or not. In pregnancy, even greater caution should be exercised. If a patient has been receiving diphenylhydantoin without reaction, pregnancy should not be expected to cause such reactions.

2. Ergotamine tartrate is contraindicated throughout pregnancy. This does not mean that abortion will necessarily follow its use, but it certainly does tend to produce uterine contractions. The longer the duration of pregnancy, the greater this effect is manifested, and a ruptured uterus may follow its use.

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DIAGNOSIS AND TREATMENT OF OCCUPATIONAL METAL POISONING

LEONARD GREENBURG, M.D.
New York

The rapid development of American technology during and following the last war has not only taxed the skills of the scientist and the engineer but has also created new problems for the physician. One has only to think of the preventive, diagnostic and therapeutic concepts which the field of artificial radioactivity has created to realize how complex the practice of medicine has become and will continue. These new problems are not only the province of the radiation specialist and industrial hygienist; the general practitioner too must be alerted to the changes brought about by the use of new substances and processes in industry, since they are responsible for a changing picture of disease and illness among the working population.

Of importance to the general practitioner are the problems of occupational metal poisoning. The introduction of many new alloys and industrial processes has created environmental conditions wherein workers are often subjected to the dusts and fumes of toxic metals and the mists or gases of metallic compounds. Rare metals which a few years ago were laboratory curiosities have suddenly assumed important roles in industry. As a result, new disease entities are being encountered; for example, the pathologic manifestations resulting from exposure to beryllium, a metal almost unknown in industry as recently as ten years ago, and in addition exposures to old offenders are revealed in unexpected form.

The general practitioner may ask: "But why does this concern us? Are not these the problems of the industrial hygienist or of the plant physician?" The industrial diseases do not, as a rule, stand out as distinct entities which are immediately referred to the specialist; more often they first come to the attention of the family physician as an indefinite acute or chronic complaint, which, unless the occupational exposure is carefully evaluated, results in diagnosis and treatment as a nonoccupational illness. In their ability to affect many organ systems and to imitate other diseases, the industrial illnesses take second place to none, not even syphilis. Many a worker has been subjected to a laparotomy for suspected appendicitis when he was actually suffering from lead poisoning of obscure occupational origin or treated with penicillin for bacterial pneumonia when he was really the victim of exposure to cadium fumes.

The first problem confronting the general practitioner is, therefore, one of diagnosis.

THE DIAGNOSIS OF THE OCCUPATIONAL DISEASE

How does one arrive at a diagnosis of the occupational disease? What does one look for, and how is the occupational disease differentiated from the nonindustrial one?

It would not be an uninteresting task to write a lengthy dissertation on the mental steps involved in the making of a medical diagnosis. Time does not permit such a pleasant diversion. Suffice it to say that the exposure of large numbers of industrial workers to the special conditions under which they work and to toxic substances with which they come in contact makes it essential that a careful and complete occupational history be taken and that the physician possess a knowledge of the toxic effects of the substances to which workers are exposed.

The Occupational History.—The importance of taking a complete occupational history cannot be overstressed. It is necessary to know not only what the patient's job is but also specifically what materials he handles, what processes he performs on the materials and what his working environment is. When a man states that he is a lead burner, a diagnosis of lead poisoning may become obvious, but when he says that he is a furnace tender in a brass foundry, it may require considerable detailed questioning to elicit a history of a no less significant exposure to lead fumes. Unfortunately, often the worker himself may not be aware of the nature of the materials which he is handling; the furnace tender may be totally oblivious of the high percentage of lead in the brass he is handling or of the smaller amounts of arsenic, beryllium or selenium which may be present.

The occupational history, therefore, should include a complete knowledge not only of the job but also of the materials handled in the plant by the worker and by other closely associated workers. Not only is it necessary to obtain this information for his current job, but all his previous positions of employment should be reviewed in order to evaluate the cumulative effects of exposure in the past. Frequently, because of the lack of detailed knowledge on the part of the worker, the physician may have to extend his inquiries to the plant itself. In many instances, it may be possible to obtain the necessary information from the plant physician or the safety engineer. In others, an investigation on the site may be indicated. Often the state or local division of industrial hygiene may be of service in this respect.

Dr. Greenburg is executive director of the Division of Industrial Hygiene and Safety Standards, New York State Department of Labor.

Read in a joint meeting of the Section on General Practice and the Section on Preventive and Industrial Medicine and Public Health at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

This may sound formidable, but in most instances the taking of the occupational history may be done rather simply by noting, in addition to the usual personal information, the following: name of company, process, job, materials handled and date of beginning and ending of employment. The history should start with the present job and work backward chronologically, if possible, ending with the first employment of the patient.

It is of fundamental importance that the physician know, or at least be familiar with, the signs or symptoms of the commoner occupational diseases. Without such knowledge, it is impossible for the practitioner to tie together in his mind the present complaint of the patient and the causal agent, the industrial exposure.

For this reason, I should like to summarize briefly the more or less common metallic exposures which may be associated with various occupations and the systems affected by each of these metals. It is not to be hoped that this brief paper can fully acquaint physicians with all the hazards and their signs and symptoms, but I would at least like to give an impression of the broad scope of the field and of the variety of aspects which the industrial diseases may present.

HAZARDOUS METALLIC EXPOSURES

Foremost among the hazardous metallic exposures are those to which smelters, refiners and workers in founderies are subject. Many of these hazards are immediately apparent, as, for instance, in the smelting and refining of lead, mercury or beryllium, but often the really dangerous metal may be present only as an impurity. Copper, for example, is considered a nontoxic metal, but many of its ores contain sufficient arsenic to present a real hazard to workers handling them. The addition of lead, and more recently beryllium and selenium, to brass and bronze in order to achieve special properties may, in addition, create a real danger. Similarly, manganese, chromium, selenium and beryllium have all been used in the manufacture of special alloy steels. The exposure may occur not only in the process of melting and pouring, when the toxic metals are liberated as fumes, but also from sawing or grinding off gates and risers, tumbling, cutting up ingots and handling scrap, all of which may create toxic dusts. In the course of refining some of the metals, soluble salts may be formed as an intermediate step, with the dissemination of dusts when dry and mists when in solution.

These products of the mills and foundries then undergo a variety of operations. They may be machined, ground or polished, yielding dusts in the process. Surfaces may be plated with chromium or cadmium, with the production of a hazard from the metallic mists. The increased use of welding has created a fume hazard in many shops, not only from the toxic metals in many of the alloys but also from metals which have been plated, particularly with cadmium. Riveting, welding and acetylene torch cutting of structural steel which has been painted with red lead may liberate lead fumes. Soldering and lead burning often expose a worker to lead and antimony.

Toxic exposures to metals occur in many other occupations in which the association is more devious. The incidence of lead colic among painters is well known, but the fact that antimony, mercury, arsenic, chromium and selenium are also used in the preparation of various pigments and may be a hazard to the manufacturers of such paints is often much less obvious. The lead and antimony in type metal create a danger in many branches of the printing industry, especially in casting operations on a large scale. Lead, antimony, arsenic and selenium are common ingredients of ceramic glazes, and recently beryllium oxide has found use as a ceramic in instances in which high-melting and heat-conducting characteristics are essential. The use of lead salts in the formulas of special glasses is often overlooked as an industrial hazard because of the preponderant exposure to silica dusts. Mercury is finding increasing use in all types of precision instruments and electrical equipment, including many types of switches, electronic tubes and lamps, and in paints and insecticides. More recently there is the serious hazard presented by the beryllium salts used as phosphors in the manufacture of fluorescent lamps, neon signs and cathode ray tubes.

Since the two following articles will deal with the problem of lead at some length, I will not discuss it here other than to mention that lead may be responsible for a multiplicity of general, gastrointestinal and neurologic disorders, ranging from fatigue and anemia to colic and encephalitis.

Arsenic.—Arsenic may cause either local or systemic manifestations. The local ones consist of cutaneous manifestations of various types, such as dermatitis, eczema, ulcers, keratosis, scleroderma and bronzing. Frequently, the eyelids and mucous membranes may be affected. If not properly treated, the lesions may undergo carcinomatous degeneration. Frequently, arsenic which is absorbed into the body is excreted by the sweat glands, so that lesions of the skin develop in moist areas, such as the scrotum or axilla, as well as on exposed surfaces. Dryness of the mouth and throat and hoarseness may result. Systemically, the metal causes trophic changes in the hair and nails (because of its affinity for sulphur), neuralgia and multiple neuritis, with slight motor paralysis, gastric symptoms and anemia. Arsine or hydrogen arsinide, which is a gas often accidentally liberated by the contact of arsenic with an acid, has a rapid and violent hemolytic effect and may cause severe anemia with jaundice and hemoglobinuria. Both acute and chronic cases of exposure can usually be confirmed by the presence of arsenic in the urine and delayed chronic cases by analysis of the hair and nails.

Cadmium.—Cadmium produces severe systemic reactions, but since the primary industrial exposure is by the inhalation of fumes and dusts most cases usually involve the respiratory tract predominantly. It first causes a dry or sore throat, followed by headache and dizziness. Subsequently, severe constricting pain in the chest and dyspnea develop, secondary to acute pulmonary inflammation and edema with pleurisy. The mortality is high, but recovery, when it occurs, is complete. Cloudy swelling of the liver and spleen have been noted at autopsy. When ingested, the metal causes severe epigastric distress and vomiting.

Beryllium.—The addition of beryllium to the list of toxic industrial metals has been so recent that there is still some confusion in the clinical picture. Locally, it may cause urticaria, which progresses to papular and vesicular dermatitis and sometimes to ulceration. Particles embedded under the skin produce granulomatous lesions or indolent ulcers. The most important effects, however, are on the respiratory tract. The more soluble forms produce an irritation varying from mild pharyngitis to severe bronchitis and pneumonitis with pulmonary edema. These usually appear a few days or weeks after exposure, and unless death from acute pulmonary disease supervenes they resolve completely in one to two months. The insoluble salts appear to cause a chronic pulmonary granulomatosis, characterized by diffuse thickening of the alveolar walls, monocytic infiltration and unit lesions consisting of aggregations of histiocytes which undergo hyaline degeneration and containing the Langhans type of giant cells and inclusion bodies. Roentgenologic findings consist of a fine soft granularity in the early cases, which progresses to diffuse reticular patterns and then to uniformly distributed nodules 1 to 5 mm. in diameter in the advanced stage of the disease. This form of the disease often does not show up until years after the initial exposure and sometimes several years after cessation of contact with the toxic agent. There results a marked diminution of respiratory reserve, with high mortality and almost invariably permanent disability. Granulomas are also occasionally seen subcutaneously and in the liver. More recently, a form of the disease falling between the acute and chronic types, with a longer latent period and a longer period of convalescence but no permanent pulmonary changes, has been reported due to the inhalation of fumes and dust of the pure metal and oxide.

Mercury.—Mercury, like lead, is a metal which is principally absorbed through the respiratory tract but which exerts its toxic effects on several organ systems. Primarily, it is a poison which affects the central nervous system. It produces an intention tremor similar to that seen in paralysis agitans. This may affect the hands, limbs, head, lips, tongue or jaw, either unilaterally or bilaterally. The paralysis is readily demonstrated by the worker's handwriting. In addition, various psychic disturbances, such as unrest, irritability, depression and a loss of concentrating power and self confidence, may be present. Occasionally, generalized weakness, pains in the chest and cramps in the leg muscles may develop. Nephrosis or nephritis, with considerable albuminuria, is a frequent, and sometimes only, evidence of intoxication. Gastrointestinal disturbances, such as nausea, diarrhea or constipation, vomiting and stomatitis, sometimes occur, particularly in the presence of poor oral hygiene. Diagnosis is sometimes aided by a determination of the amount of mercury in the urine, but there is no definite relationship between the amount found and the degree of poisoning.

Manganese.—The effects of manganese poisoning are limited almost exclusively to the central nervous system. There is a disturbance of gait, with stiffness of the legs and a tendency to drag the feet, which is characteristic and which makes it extremely difficult for the persons affected to walk backward or up an inclined surface. Masklike facies, increased fatigability and sleepiness have also been noted. The effects are usually permanent except when the exposure has been brief. Degenerative changes in the basal ganglions have been found at autopsy. Other effects include neutropenia, occasional mild hemoglobinemia and a slight lowering of the blood calcium content. Determination of manganese in the urine is useful in demonstrating a past or present exposure, since the metal is stored in the lungs and slowly excreted by the kidneys, but the amount has no relationship to the degree of intoxication.

Chromium.—The toxic effects of chromium are mainly manifested by chromic acid and its salts. The most common is the development of indolent ulcers on the skin or the mucous membranes, particularly on the dorsum of the fingers, hands or arms, the nasal mucosa or the eyelids. They are deep, with thickened rounded edges, and are relatively painless, with little evidence of inflammation. Those in the nose frequently result in perforation of the septum. Less common manifestations are allergic reactions, such as dermatitis and asthma. Recently, chromium has been indicted as an etiologic agent in cancer of the lung, particularly among those engaged in mining and processing of chromate ores.

Selenium.—Selenium is one of the lesser known metals whose toxic properties have not yet been adequately evaluated. It appears to cause respiratory irritation, with cough and pulmonary edema, gastrointestinal symptoms including nausea, vomiting and abdominal cramps and disturbances of the central nervous system such as convulsions and loss of reflexes. There is some evidence that chronic exposure may be an etiologic factor in the occurrence of tooth decay, arthritis and disease of the liver. Absorption of selenium can be readily demonstrated by its presence in the urine and by a garlic odor of the breath.

The oxide fumes of certain metals, principally zinc but also mercury, tin and copper, are known to produce a physiologic response known as metal fume fever. It occurs only with fumes from such operations as casting or welding and cannot be demonstrated with dusts of the metals or their oxides. The symptoms resemble those of influenza, with chills, fever, malaise, generalized aches, dry throat, nonproductive cough and sometimes nausea and vomiting. Other than leukocytosis, there are no pathologic changes, and no chronic effects or sequelae have ever been noted. The condition clears rapidly after removal from exposure.

Tellurium, thallium and vanadium are believed to have effects similar to those of selenium, with an additional depilatory effect ascribed to thallium, but, industrially, few exposures have been described as yet. Aluminum and magnesium are considered toxicologically inert, although when metal chips become lodged under the skin they produce local subcutaneous emphysema and necrosis from the liberation of hydrogen by reaction with the body fluids. Iron may produce a condition known as siderosis because of the deposition of dusts or fumes in the lungs, but this is considered an inert form of pneumonoconiosis which does not cause disability. Many types of disease have been attributed to copper in the past, but almost all have since been shown to be the result of handling the accompanying lead or arsenic, either in alloy form or as a contaminant, and no industrial hazards from pure copper other than metal fume fever have ever been proved. Silver, even in nonorganic combination, has been shown to cause argyrosis when inhaled or ingested, but the occurrence of industrial exposures has been relatively rare.

THE TREATMENT OF THE METALLIC POISONS

With the diagnosis of poisoning by a toxic metal established, what is there to offer in the way of treatment? First and foremost, there must be insistence on complete removal from exposure. All the toxic metals, other than those producing fume fever, are cumulative in the body, and a mild intoxication, which on the basis of symptoms would not prevent a worker from continuing on the job, might readily become serious if further exposure is continued. When it is possible to transfer the employee to an exposure-free job, this might be considered, but care must be taken to insure that this is not work at a lower level of exposure which would be harmless only to someone who had not accumulated toxic amounts of the metal. Once the affected person is removed from exposure, most of the conditions will gradually clear up, as the body slowly detoxifies itself by the normal avenues of excretion. When irreversible changes have taken place, such as degeneration of nervous tissue or pulmonary fibrosis, the worker may not show improvement with removal from exposure, but at least further deterioration may be prevented.

Other measures of importance in the general treatment of toxic metal poisoning are those which promote recovery and aid in the elimination of the substances. Adequate rest and a nutritious diet are essential. When the symptoms are severe enough, bed rest is frequently indicated. The diet should be supplemented by vitamins, if necessary. Symptomatic treatment, such as sedatives for cough or pain, is always in order.

Specifically, there are a few drugs in the physician's armamentarium which are of definite or possible value in the case of certain metals. I will not enter into a discussion here of the various types of treatment advocated in lead poisoning, as this will be covered in detail by one of the later speakers. When respiratory embarrassment occurs, as in the presence of pulmonary edema from acute beryllium, cadmium or selenium intoxication or of the alveolar pathologic changes caused by chronic beryllium poisoning, oxygen will often be helpful in tiding the patient over the most severe phases of the disease. Because of the low blood calcium content demonstrated in cases of manganese poisoning, large oral doses of its salts have been recommended; intramuscular injections of liver extract are also claimed to be beneficial in this disease. Sodium thiosulfate given intravenously has been used with beneficial results in both manganese poisoning and mercury poisoning. The nervous disorders of the latter have been helped by the use of drugs of the atropine group, notably scopolamine or stramonium, and, more recently, by administration of amphetamine sulfate. Local cutaneous reactions are usually best treated palliatively. Chrome ulcers will heal more readily if the salts in them are reduced: scrubbing with sodium hyposulfite solution or its application in the form of wet dressings will frequently açcomplish healing. Débridement or complete excision may occasionally be necessary; this treatment is always indicated for the subcutaneous lesions produced by beryllium or the other light metals.

During the last war, British scientists developed 2,3-dimercaptopropanol, more familiarly known as BAL, as an antidote for the toxic effects of arsenic compounds, at that time feared principally as war gases, such as lewisite. This compound acts apparently by the great attraction of its sulfhydryl radicals for arsenic, which would otherwise combine with the sulfur-containing molecules of the body tissues and destroy their activity. It has proved effective in the treatment of industrial arsenic poisoning, both for the systemic effects when given intramuscularly and for the skin and eye reactions when applied locally. Some side reactions from its use have been noted, but they are rarely severe enough to force discontinuance when the dosage is carefully controlled. It has also been shown to be effective in the treatment of acute mercury poisoning.

In conclusion, then, the toxic metals constitute an increasing industrial hazard because of the many new uses to which metals are being put. Prompt recognition of the industrial origin of the many obscure signs and symptoms, referable to almost any organ system of the body, is essential if the disease is to be diagnosed before irreversible changes have taken place. The principal aids to proper diagnosis are a good occupational history, with a thorough investigation of the materials to which the worker has been exposed, and an adequate knowledge by the physician of the toxicology of those materials. Once the diagnosis has been established, therapy should be directed to removal of the patient from any further contact with the toxic substance, promotion of its elimination through natural channels, rest and general supportive and palliative therapy. A few specific substances have been shown to be effective for certain metals, notably BAL in the treatment of arsenic poisoning and acute mercury poisoning. But the best control of toxic metal poisoning lies in the prevention of excessive exposures by industrial hygiene for which the plant physician, the industrial hygienist and the safety engineer must assume some responsibility.

DIFFERENTIAL DIAGNOSIS OF LEAD POISONING

Accepted Laboratory Criteria

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Milwaukee

Twenty-three years ago, as an assistant resident in medicine, my experience with lead poisoning began. I was called on to diagnose and treat lead colic, caused by the inhalation of lead dust in the manufacture of storage batteries, in a small group of patients. Fortunately for them, the monograph on lead by Aub and his associates had just been published.[1] Using his clinical method of study and his uniformly effective treatment with intravenous injections of calcium, I was able to return 6 of the men rapidly to their work.[2] Since then, I have limited my practice to internal medicine, and have also had the opportunity to study several hundred other lead workers, subject to nearly every known type and intensity of industrial exposure to lead. For eighteen years, at the time of this report, I have been responsible for the health of 80 to 100 lead workers in the storage battery industry. In this period, there has never been a time when some of the men have not had a lead line, indicating considerable absorption of lead.

In spite of increasing attention to mechanical means for the prevention of absorption of lead, occasions have arisen when heavy exposure has been temporarily unavoidable. These have been due to the element of human inability to follow suggestions, or have occurred when, during installation, new machines were temporarily not covered with protective devices.

When I first took over the responsibility for the health of this group, there was an incidence of disabling lead poisoning of 20 men per hundred each year.[3] In the past eleven years, I have had no cases of

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Read before the joint meeting of the Section on Preventive and Industrial Medicine and Public Health and the Section on the General Practice of Medicine at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

[1] Aub, J. C.; Fairhall, L. T.; Minot, A. S., and Reznikoff, P.: Lead Poisoning, Medicine **4**: 1-250 (Feb.-May) 1925.

[2] Belknap, E. L.: Lead Poisoning; The Diagnosis and Treatment of Its Most Common Toxic Episodes, Lead Colic, Wisconsin M. J. **28**: 346-350 (Aug.) 1929.

[3] Belknap, E. L.: Control of Lead Poisoning in the Worker, J. A. M. A. **104**: 205-210 (Jan. 19) 1935.

disability due to lead intoxication. Now, after twenty-three years, I am still depending primarily on Aub's clinical diagnostic picture and plan of treatment, coupled with physical and laboratory examinations, performed periodically every two to four weeks. A somewhat similar, and very excellent, plan for an individual screening record for lead workers was recently reported by Silson, of the Medical Unit, Division of Industrial Hygiene and Safety Standards of the New York State Department of Labor.[4]

CLINICAL DIAGNOSIS

It is my conviction that the diagnosis of lead intoxication, the commonest industrial poisoning, is primarily a clinical problem. It is certainly one that is first met by the general practitioner, with increasing frequency, in our modern chemical industry. He is the man to whom the patient turns first. Can the physician in general practice, however, make a satisfactory diagnosis? It is my opinion that he can make the correct diagnosis as to the presence or absence of lead poisoning in 90 per cent of the cases. He must use the skills available to every physician, namely, a detailed history, careful physical examination and observation for lead line and wrist drop, together with studies of the blood, especially the determination of hemoglobin and the increase in stippled cells. First, he should study up on the subject, because most medical schools give no practical instruction in occupational medicine. Second, he can be quickly trained to take a good occupational history as well as a complete general history. He should be able to conduct a thorough physical examination, including a search for a lead line, and to test for true paralysis on extension of the wrist. Every medical student is now instructed in how to stain blood smears and make stippled cell counts or, at least, trained to evaluate reports of such studies when received from a laboratory.

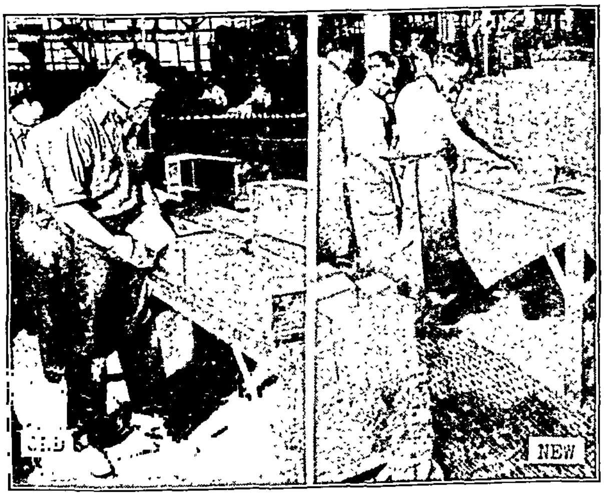

Fig. 1.—In firsthand inspection of the place of work, correlated with the finding of the lead line and stippled cells in the worker, the physician can recognize danger in an occupational exposure. Frequently, he can recommend protective engineering devices which will keep the worker healthy. Note the perforated work tables, with downdraft suction, and slotted floor mats to help control the lead dust at its source.

Distinction Between Lead Absorption and Lead Intoxication.—The physician must first have clearly in mind the distinction between lead absorption and lead intoxication. Lead absorption means absorption of lead into the system by inhalation or by ingestion. This lead absorption is shown as well by the determination of a lead line and a few stippled cells as it is by quantitative determination of lead in the urine and blood, and the process is much simpler.

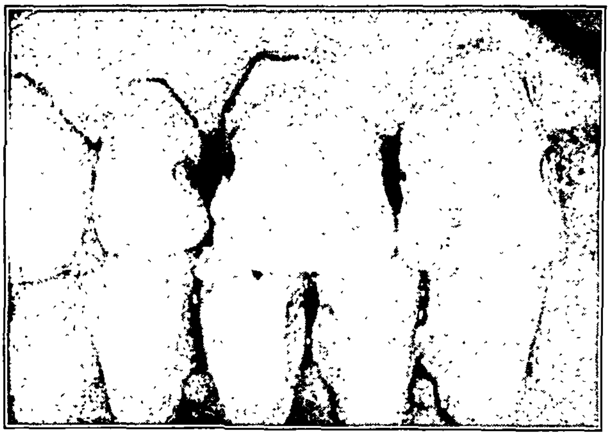

Fig. 2.—Under a hand lens the lead line of blue-black lead sulfide, actually deposited in the gums immediately opposite to the teeth, appears as a clear row of dots or vertical streaks. The worker had continuous heavy exposure to lead for one month before appearance of the lead line as 3 plus (definite dotting opposite 3 teeth).

Lead intoxication, or true lead poisoning, is present when the patient shows definite evidence of illness with disability, due to one of three main types of lead intoxication. These are lead colic, the commonest type, lead palsy and lead encephalopathy, much rarer and more serious types of lead poisoning.

Let us now consider the steps with which the practicing physician can make a diagnosis of lead poisoning. If possible, he should analyze at firsthand the probable exposure of the worker, in a personal tour of his place of work, just as Ramazzini advised two hundred and fifty years ago. The alert doctor of medicine does not require an engineering degree to see the advantage of downdraft, perforated work tables and slotted floor mats in helping to control lead dust at its source (fig. 1). If the physician studies the work place, as well as the worker, he may make up his mind from direct observation whether the occupational conditions contributed to the lead absorption that may be present.

Lead Line.—The simplest way of proving lead absorption (not lead poisoning) in the individual patient is to demonstrate a true lead line of the gums. The physician must be in a position to say more than "There is a suggestive lead line" or "The gums are somewhat bluish gray." Although I have heard some experts on lead poisoning complain that they were not sure they could recognize a lead line, it is not difficult to demonstrate its presence. With simple, though adequate, study under a small hand lens, using a head mirror and good illumination, the lead line appears as in figure 2. It is blue-black lead sulfide, actually deposited in the substance of the gums next to the teeth. Under the lens, the lead sulfide is seen as a clear row of dots or vertical streaks. A lead line is best seen in gums with acute pyorrhea, next to a carious tooth, behind the front teeth or next to the molars, where aeration is rarely good. One must be certain that the man is not receiving bismuth for syphilis, as a bismuth line is indistinguishable from a lead line. However, a lead line is not easily seen in mouths where there is good oral hygiene, without pyorrhea or decayed teeth.

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[4] Silson, J. E.: Medical Control of Lead Workers, New York State Dept. of Labor, Monthly Rev. 27: 17-20 (May) 1948.

LABORATORY EXAMINATIONS

Stippled Cells.—In the case of a clean mouth with no lead line, the diagnosis may depend chiefly on the presence of stippled cells. There are approximately 200 red blood cells per oil immersion field, so that in 50 such fields there are about 10,000 red cells. To arrive at the number of stippled cells per million, one multiplies by 100 the number of stippled cells found in 50 fields.

There are those who say that stippled cells are of no diagnostic importance because they are not specific for lead poisoning. I believe that no qualified expert in this field has ever said that they were specific or pathognomonic. Wintrobe stated the belief that the finding of any stippled cells in the blood of a normal person is infrequent.[5] However, according to Machle,[6] there may be a few stippled cells in the normal person, as from 3 to 7 per 50 fields, the equivalent of about 300 to 700 per million red blood cells. It is well known that any condition which causes a strain on the bone marrow, such as severe secondary or primary anemia or a debilitating disease, such as cancer, leukemia, benzene poisoning or Hodgkin's disease, may eventually cause basophilia and production of stippled cells in the peripheral circulation, as was so well brought out by Johnstone.[7] The difference, however, is that in these conditions anemia appears in a pronounced form long before the stippled cells appear: in the case of frank lead intoxication, stippled cells may be seen long before the anemia appears. This appearance of stippled cells before anemia is, of itself a striking observation and almost diagnostic of lead intoxication. It is not new, as it was emphasized by Cabot in 1904.[8]

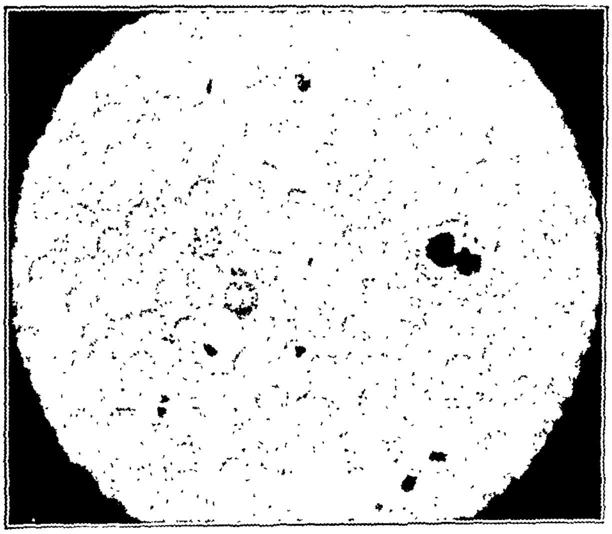

Fig. 3.—The worker showing these stippled cells had three months' heavy exposure to lead before the dangerous level of 20 stippled cells per fifty fields was noted. He had discarded his approved lead dust respirator frequently to smoke. Two weeks after he began to wear a respirator regularly, the number of stippled cells dropped below 20.

So frequent is the association of stippled cells with clinical lead poisoning that the committee on lead poisoning of the American Public Health Association, with Dr. Robert Kehoe as chairman, emphasized it in their report:

> The occurrence of stippling in active lead poisoning is so regular that the failure to find it when one makes use of adequate staining and examination of the blood, should create grave doubt that lead is the agent responsible for an intoxication that is under study.[9]

In the same report, the committee states:

> In a large proportion of cases of lead poisoning, a large increase in the number of stippled erythrocytes in the peripheral circulation occurs in coincidence with the onset of symptoms and perhaps immediately preceding the onset. This abrupt rise above the previous normal level ranges from seven hundred or eight hundred red cells per million up to 35,000 or 40,000 stippled cells per million.

This is the equivalent of a rise from a level of 7 stippled cells, per 50 oil immersion fields to that of approximately 350 per 50 fields.

Any physician who has had experience with clinical lead poisoning knows that the finding of more than 10 to 20 stippled cells per 50 fields in a patient without obvious anemia and with or without a lead line, in the face of known exposure to lead, puts the burden of proof on the examiner who would say that the symptoms were not those of lead poisoning. The characteristic abrupt rise in the number of stippled cells in conjunction with a significant clinical history is practically diagnostic of lead poisoning, according to most of the reports in the literature and the cases in my own experience.[10] Stippled cells, as well as the lead line, have been closely bound up with the clinical history in the diagnosis of lead poisoning for many years. The cells are not difficult to demonstrate, even with Wright's stain, with which every physician is familiar (fig. 3).

Recently, with the growth of more refined methods for study of the urine and blood, there has been a tendency to belittle the time-honored evidence of stippled cells, as well as that of the lead line.

Quantitative Values of Lead in Urine and Blood.—Exact quantitative technics for the determination of lead in the blood and urine are valuable for confirmation in studying the levels of lead absorption. However, they are time-consuming and liable to considerable error when attempted in the average laboratory.

As Fairhall said of the analysis of lead in the body fluids:

> When it is realized that the determination frequently revolves around a matter of millionths of a gram in 1,000 or 2,000 Gm. of fluid or substance and that the total amount of other inorganic constituents accompanying lead in such material may amount to 50 or 100 Gm., it is obvious that the separation and quantitative evaluation of these extremely minute amounts of lead is exceedingly difficult.[11]

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[5] Wintrobe, M. M.: Clinical Hematology, Philadelphia, Lea & Febiger, 1946.

[6] Machle, W.: Clinical Significance of Hematologic Changes in Lead Absorption and Lead Poisoning, Occup. Med 3:150-155 (Feb.) 1947.

[7] Johnstone, R. T. Occupational Medicine and Industrial Hygiene, St. Louis, C. V. Mosby Company, 1948.

[8] Cabot, R. C.: Clinical Examination of Blood, ed. 5, New York, William Wood & Company, 1904, p. 419.

[9] Kehoe, R. A.: Report of Committee on Lead Poisoning on Occupational Lead Exposure and Lead Poisoning, New York, American Public Health Association, 1943.

[10] Belknap, E. L.: Lead Poisoning: Criteria for Diagnosis, Indust. Med. 9:505-508 (Oct.) 1940.

[11] Fairhall, L. T.: Analytic Methods in Diagnosis, Occup. Med. 3:13-19 (Jan.) 1947.

I know of no authority who has ever been able to make uncontested the statement that he can diagnose lead poisoning in an individual case from the finding of lead in the urine alone, even if there were 0.3 to 0.5 mg. per liter. He can only say, in such a case, that the person has an abnormal amount of lead in the urine and that this symptom is often seen in groups of workers with lead intoxication. As practicing physicians, we must never forget that the problem of the clinician is the problem of diagnosis of the individual condition of the individual patient. It is not group testing for abnormal levels of lead absorption.

The amounts of lead that may be present in the urine and blood in a so-called normal person, not known to be exposed to lead, are as follows: The upper levels are 0.08 mg. of lead per liter of urine and 0.01 to 0.06 mg. of lead per hundred grams of whole blood. The levels which are safe for an indefinite period in a worker exposed to lead are approximately 0.15 mg. of lead per liter of urine and 0.07 mg. of lead per hundred grams of whole blood. A knowledge of these levels is valuable in estimating safe exposures for groups of lead workers. Figures are available in detail in the report previously referred to:

> The upper limit of normal lead concentration in the urine approximates 0.08 mg. per liter sample and 0.12 mg. for spot samples of 100 cc. Lead in concentration below 0.15 mg. per liter has doubtful significance. Hazardous lead exposure usually induces lead excretion above this figure of 0.15 mg. and the large proportion of cases of lead poisoning examined during an episode of intoxication show urine concentration between 0.15 and 0.30 mg. per liter.[9]

The analysis of lead in the blood requires extremely painstaking and well qualified work by specialized technicians, as the probability of error, both in the collection of samples and in analysis, is very great.

The report continues:

> The normal lead concentrations in the blood range from 0.01 to 0.06 mg. per 100 Gm. of whole blood. . . . Results in excess of 0.07 mg. per 100 Gm. of whole blood are indicative of recent lead exposure, while results in excess of 0.10 mg. per 100 Gm. show that exposure has been considerable.
>
> Mean results of 0.05 mg. of lead per 100 Gm. of whole blood . . . are representative of safe conditions of exposure and are associated with mean urinary concentration of 0.08 mg. per liter with the upper limit of variability for urinary concentration at 0.15 mg. per liter so that the upper limits of safety for the concentration of lead in the blood lie somewhere between 0.05 and 0.07 mg. per 100 Gm. (Page 18.)
>
> In lead colic, the lead content of the blood and urine will be elevated, the concentration in the blood being in excess of 0.07 mg. per 100 Gm. of whole blood and that of the urine will be at least 0.12 mg. per liter (page 51).

In conclusion, Dr. Kehoe's committee stated: "The existence of lead poisoning in a given case is not demonstrated by lead analysis, either on the basis of lead found in the blood, urine or body as a whole." (Page 45.) In other words, no one symptom and no one laboratory observation is diagnostic of lead poisoning.

DIFFERENTIAL DIAGNOSIS

My concern in this paper, however, is not primarily in the determination of safe exposure for groups of lead workers. Certainly one high determination of lead in the blood or urine or the presence of a lead line does not prove anything more than high lead absorption. The differential diagnosis of lead poisoning in an individual case must really be based on wide experience in clinical medicine. The type which is present in about 90 per cent of the patients with clinical lead poisoning which the general practitioner will see and which, therefore, calls for greatest emphasis, is the gastrointestinal type. Hunter, of England, stated that these cases are ten times as frequent as the palsy cases, the second type of lead intoxication.[12] The third type, lead encephalopathy, is rarely seen in modern industry.

Even when confronted with a probable case of lead colic, the physician should systematically rule out other causes for abdominal pain, just as he does in his general practice when faced with the possibility of an acute abdomen. Though many patients have been needlessly operated on for acute appendicitis when the true underlying cause of symptoms was lead intoxication, the converse is just as likely. Unfortunately, the worker who has abdominal pain and is known to be exposed to lead is sometimes immediately treated for lead poisoning, even though he may have an acute abdomen. I have seen this done with fatal results. In any doubtful case of severe abdominal pain in a lead worker, prompt relief from pain with intravenous injection of calcium gluconate is practically diagnostic of lead colic. If calcium given intravenously does not relieve the abdominal colic promptly, one should question whether the colic is due to lead.

One must decide whether abdominal pain is due to acute appendicitis, a perforating peptic ulcer, acute pancreatitis or mesenteric thrombosis. Even an acute condition of the chest has to be considered in any diagnosis of an acute abdomen, so one has to rule out the possibility of pneumonia and acute coronary occlusion.

One practically never sees jaundice in a patient with lead colic unless it is in a far advanced, neglected case in which destruction of the blood has been unusually severe. Then the lead line and stippling of the cells are so pronounced that the true diagnosis of lead intoxication cannot be missed. Hematuria, a common sign with renal colic, is practically never seen in a case of lead intoxication.

In differentiating the violent pain that ensues on intestinal perforation, associated with a peptic ulcer, from the colic of lead poisoning, the diagnosis must rest on a minute history characteristic of ulcer and on the sudden onset of violent pain without letup. This onset is in contrast to the gradually increasing, rhythmic attacks of lead colic, usually associated with almost complete obstipation and with the rapid increase of stippled cells from 10 to 500 or 1,000 per 50 fields. The table emphasizes the following practical points: An increase in stippled cells usually precedes symptoms of lead colic, and the number rises abruptly with the actual onset of disability; the drop in hemoglobin usually occurs a week or two after there has been an increase of stippled cells; stippled cells and lead colic may be present without a lead line, if the teeth are in excellent condition. An acute infection may often be a precipitating factor in acute lead poisoning of the lead colic type.

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[12] Hunter, D.: Industrial Toxicology, Quart. J. Med. 12: 185-258 (Oct.) 1943.

The pain of acute intestinal obstruction almost exactly mimics the pain of lead colic. In both instances there is constipation, abdominal pain of a rhythmic type and, not uncommonly, vomiting. If there are no stippled cells, however, one must rule out lead colic as a cause of the disabling abdominal pain, even in a patient exposed to lead.

When a physician is called in a case of abdominal colic and learns that the patient is a lead worker, this does not necessarily simplify the problem of differential diagnosis. He meets here a greater challenge to his diagnostic acumen. He must be thoroughly familiar with the perplexing problem of the acute abdomen before he can accurately and safely diagnose acute lead intoxication.

One must remember, finally, that lead workers are just as likely as other persons to have episodes of mesenteric thrombosis, of the rare, acute pancreatitis or of the abdominal manifestations of coronary thrombosis.

Aside from the most common type of true lead intoxication, lead colic, from which the patient usually recovers without residual symptoms in three to six weeks, there do occur cases of true lead palsy, the much rarer, second type of true lead intoxication. As I stated in "Lead Poisoning: Criteria for Diagnosis," mentioned previously:

> They usually show an associated history of preceding neglected lead intoxication of the abdominal colic type, associated with typical lead constipation and characteristic increases in stippled cells. With the onset of the actual palsy, the stippled cell level may not be excessive and often not diagnostic of itself.[10]

Record of Lead Worker Unprotected by Respirator After Two Years of Intermittently Heavy Exposure (Belknap[3])

Date	10/22	11/4	11/18	12/3	12/17	12/23	12/29	12/30 Entered hospital	12/31	1/1	1/2	1/3	1/4	1/5 Discharged†
Duration of exposure, months over 2 years	11½	12	12½	13	13½	14	14	14	14	14	14	14	14	14¼
History														
Weakness	—	—	—	—	—	—	+	+	+	+	+	+	+	+
Drowsiness	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Insomnia	—	—	—	—	—	—	+	+	+	+	+	—	—	—
Headache	—	—	—	—	+	Less	+	+	—	+	—	—	—	—
Vertigo	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bowel movements without catheterization	1x	1x	1x	1x	1x	6x	10x	—	—	—	5x	4x	2x	1x
Constipation	—	—	—	—	—	—	—	+	+	+	—	—	—	—
Diarrhea	—	—	—	—	—	+	+	—	—	—	+	+	—	—
Metallic taste	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Anorexia	—	—	—	—	—	—	+	+	+	+	+	—	—	—
Nausea	—	—	—	—	—	—	—	—	—	+	+	—	—	—
Vomiting	—	—	—	—	—	—	—	—	—	+	+	—	—	—
Abdominal pain	—	—	—	—	—	—	—	+	+	+	+	—	—	—
Weight, pounds	151	155	155	158	162	162	..	..	..	..	..	..	..	..
Gauze respirator	—	—	—	—	—	—	—	..	..	..	..	..	..	..
Muscles														
Weakness	—	—	—	—	—	—	—	+	+	+	+	+	—	—
Tremor	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tingling	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cramps	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Joint pains	—	—	—	—	—	—	+	—	—	—	—	—	—	—
Acute illness	—	—	—	—	Sinus	Throat	Aches	Colic	Less	Colic	Less	—	—	—
Physical Examination														
Temperature, F.	..	..	..	..	..	..	99	99.4	98.6	98.6	103.5	98.4	98.4	98.6
Pallor	0	0	0	0	—	—	—	Ashen						
Lead line, number of teeth	0	0	0	0	0	0	0	0	2*	2	2	2	2	2
Right wrist extension	Normal													
Left wrist extension	Normal													
Blood pressure	120/75													
Laboratory Examination														
Stippled cells per 50 fields	10	21	23	30	110	217	..	429	332	..	130	..	94	79
Hemoglobin, per cent (Sahli scale)	89	87	85	80	80	79	..	65	60	..	60	..	50	..
Red blood cells	..	..	..	..	..	..	..	4,100	4,320	..	3,980	..	4,290	..
White blood cells	..	..	..	..	..	..	..	9,650	12,250	..	11,050	..	13,500	..
Therapy					After 12/22 10 Gm. calcium gluconate orally 4 times daily			50 cc. 2% calcium chloride intravenously every 3 to 6 hr.		1 ounce magnesium sulfate each morning		calcium gluconate orally		

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* A lead line did not appear previously because of excellent oral hygiene.

† The patient returned to work six weeks later.

It is to be remembered, moreover, that lead neuritis primarily affects the motor, rather than the sensory, nerves and that it involves the extensor muscles, rather than the flexor muscles. This is in contrast to ordinary peripheral neuritis of an infectious or alcoholic type, which is usually associated with violent pain and palsy of both extensor and flexor muscles. The healing period of lead neuritis, or palsy, may extend from two months to two or three years. Even then, any residual disability is rare.

The third type of lead intoxication manifests itself in the stupor or violent delirium of lead encephalopathy, or involve-

> ment of the brain. These cases are in a class by themselves and may not show the warning of previous lead colic or stippled cell rise. Their history is a characteristic story of overwhelming lead exposure seen most dramatically in exposure to tetraethyl lead, with sudden onset of irritability followed in rapid succession by marked excitability, mania, coma, and frequently death. Less dramatic types [sometimes seen in children] are characterized by heavy lead exposure with headache, dizziness, confusion and somnolence as the predominant picture. Such cases, usually marked by convulsions at the onset, . . . are uncommon in modern industry, where we are concerned with adults. With the ordinary precautions now widely used against excessive lead absorption, lead encephalopathy has largely vanished from American industry. There is an interesting observation to be made here, that, even in this most intense type of lead intoxication, . . . providing the [adult] patient has survived the acute stage, after a healing period of disability of two months to two years, there may be no residual effects. In children, however, residual damage is not uncommon.[10]

Whether adult or child is involved, lead encephalopathy is the only type of lead intoxication that kills. However, all these types of lead poisoning are acute, and only these three acute types should be dignified with the term "lead poisoning."

SUMMARY

While I heartily agree with the great value of research in the specialized study of lead absorption, I believe that it is our responsibility also to point out to the general physician that he already has the skills to meet the emergency of diagnosing and treating acute lead poisoning in the individual patient.

In conjunction with the history and physical examination of the patient, including a careful search for a lead line, the study of the blood by determination of the stippled cell curve (usually seen to rise abruptly, in advance of a drop in hemoglobin) is in the majority of cases the deciding point in making a diagnosis of lead intoxication, or frank lead poisoning.

COMMENT

That I am not alone in my insistence on the preeminent importance of these simple clinical observations was shown in a letter I received recently from S. B. Scott, assistant medical officer of one of the largest British companies manufacturing storage batteries, whose 800 workers are exposed to lead absorption. He had written to this country inquiring as to the present status of methods for practical control of lead poisoning. In answer to the reply which I sent him, he states:

> I have been more interested to find that you place more reliance on the methods which we favor here, i. e., routine search for stippled cells and estimation of hemoglobin. Having studied your views, I feel that our present methods are much in agreement and that there is no good reason for changing them.[13]

Certainly, we should emphasize to the nonspecialized member of the American Medical Association, the man in general practice, that the workable technics in which he is already well trained are quite sufficient to make a satisfactory diagnosis of acute lead intoxication and that the differential diagnosis of lead poisoning depends, not on any one laboratory criterion, but primarily on the whole clinical picture.

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[13] Scott, S. B.: Personal communication to the author, May 4, 1948.

TREATMENT OF LEAD INTOXICATION

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The method of treating the acute phase of lead intoxication has been well established and its rational universally accepted. However, the type of treatment that should be instituted after the subsidence of the acute symptoms is a controversial issue. While the approved treatment of the acute stage will be reviewed, this paper will deal primarily with the theories versus practicability of storing and deleading.

It would seem obvious that the entire therapeutic regimen should be directed toward (1) overcoming the intestinal colic, (2) correcting the anemia, (3) making the patient symptom free with no disability and (4) returning the patient to a remunerative job as soon as possible.

The following procedures are prescribed for the acute stage:

1. Hospitalization or ambulatory, depending on symptoms
2. If hospitalized, bed rest or ambulatory, depending on colic
3. High calcium diet
4. Warm water bag or electric pad for abdominal discomfort
5. One half to 1 ounce (16 to 31 Gm.) magnesium sulfate every morning on arising
6. Antispasmotics, such as tincture belladonna, phenobarbital mixture, every four hours, or amprotropine phosphate (syntropan®) tablets or hydrochloride of diphenylacetyl diethylaminoethanol (trasentine hydrochloride®) and phenobarbital tablets for abdominal discomfort
7. Ten cubic centimeters of 20 per cent calcium gluconogaloctogluconate solution (neo-calglucon®) intravenously every four hours
8. No narcotics advised
9. Complete blood cell count and stippling determination, followed by red blood cell count and stipple cell counts taken every three days
10. Estimation of lead in urine (twenty-four hour specimen) and urinalysis

This routine therapy is predicated on the original contention of Aub[1] and his associates that the direction of the lead stream is similar to that of the calcium stream, that when calcium is being deposited in the bones, circulating lead is being deposited in the bones and that when calcium is being pulled from the bones, some stored lead is also liberated.

Deleading appears to be the method advocated by most authorities, but this does not tell the whole story, because it is unusual to find physicians who actually utilize this procedure: as a matter of fact, recently a questionnaire was sent to twelve actively practicing industrial physicians engaged in this work, and their answers showed that only one physician was using deleading, two physicians formerly used deleading, but had given it up, and the remaining nine had never utilized deleading in any shape or form.

METHODS OF DELEADING ADVOCATED

1. *High Calcium Diet.*—This method was claimed by Lederer and Bing[2] to be the optimum diet for deleading. Taeger[3] arrived at the same conclusion.

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[1] Aub, J. C.: The Biochemical Behavior of Lead in the Body, J. A. M. A. **104:** 87 (Jan. 12) 1935.

[2] Lederer, L. G., and Bing, F. C.: Effect of Calcium and Phosphorus on Retention of Lead by Growing Organism, J. A. M. A. **114:** *2457 (June 22) 1940.*

[3] Taeger, H.: Calcium Therapy of Lead Poisoning, Klin. Wchnschr. **16:** 1613, 1937.

Schilling and Hopper[4] expressed the belief that the use of calcium did not induce superior calcification, but rather had the opposite effect. Gray and Greenfield[5] reported that prolonged high calcium diet and regimen was the best means of deleading. On the other hand, Litzner, Weyrauch and Barth[6] claimed that a high calcium diet reduces lead excretion.

TABLE 1.—*Age Factors*

Total Number Intoxication Cases	62
Age groups	
28 cases between 21-29 years	
22 cases between 30-39 years	
11 cases between 40-47 years	
1 case 54 years	
Average age, intoxication case (years)	31
Average exposure (weeks)	12
Average time lost from work (days)	23
Age of youngest patient (years)	21
Age of oldest patient (years)	54
Exposure of youngest case (weeks)	4
Exposure of oldest case (weeks)	8
Shortest exposure case (days)	12
Longest exposure case (days)	37

2. *High Phosphorus and High Vitamin Diet.*—Gray and Greenfield[5] found the use of an optimal calcium diet with a high phosphorus and high vitamin diet (vitamin D particularly) the best treatment in these cases. Gray,[7] interestingly enough, observed a few years previously that a low calcium and high phosphorus diet (ration 1:4) was ideal in deleading; on the other hand, Lederer and Bing[2] disagreed with this statement and expressed the opinion that the addition of phosphate has no beneficial effect.

3. *Low Calcium Diet.*—As stated previously, Gray[7] recommended a diet low in calcium.

TABLE 2.—*Hospital and Nonhospital Studies*

Total Number Cases 1939-1948	62
Hospital cases	35
Nonhospital cases	27
Hospital Cases	
Average age	33 years (21-54)
Average length of exposure	10 weeks (4-51)
Shortest hospital stay	5 days
Longest hospital stay	31 days
Average hospital stay	14 days
Average loss of time	31 days (7-55)
Nonhospital Cases	
Average age	30 years (21-47)
Average length of exposure	14 weeks (4-28)
Average loss of time	15 days (1-47)

4. *Ascorbic Acid Therapy.*—Holmes, Campbell and Amberg[8] observed much benefit from ascorbic acid therapy in cases of lead intoxication; others have had no success with this form of therapy.

5. *Other Substances.*—Ammonium chloride, potassium iodide (Belknap[9]), sodium bicarbonate, sodium citrate (Kety and Letonoff[10]), parathyroid hormone and 2,3-dimercaptopropanol (BAL) antilewisite have been used.

Do these procedures actually delead? Kehoe[11] stated, ". . . there are grave doubts whether or not the elimination of the toxic agent can be materially accelerated by artificial means" and further added, ". . . this elimination can only be accomplished spontaneously over a considerable length of time." Aub[1] and his associates concluded that complete deleading cannot be done. Oliver[12] and many others have confirmed this observation. It is most interesting that practically all the advocates of deleading admit that the procedure is dangerous and must be attempted only in specific circumstances. Johnstone[13] stated, ". . . this procedure (deleading) has been discarded due to the belief that lead is excreted from the body by normal physiologic processes."

TABLE 3.—*Blood Studies*

Period of Greatest Changes in Counts and Smears—7-14 days after acute symptoms arise		
Period When Blood Cell Counts and Smears Return to Normal (according to whether or not hospitalized)		
Hospital cases		4½ months
Ambulatory cases		5 months
Period When Blood Cell Counts and Smears Return to Normal (according to age)		
Short exposure case group (below 10 weeks)		4.4 months
Long exposure case group (beyond 10 weeks)		4.3 months
Range of Red Blood Cells*		
Lowest count	(H)	2,980,000
	(A)	3,720,000
Highest count	(H)	4,150,000
	(H)	4,750,000
Average count	(H)	3,378,000
	(A)	4,034,000
Range of Hemoglobin Counts		
Lowest count	(H)	56%
	(A)	68%
Highest count	(H)	75%
	(A)	70%
Average count	(H)	65%
	(A)	71%
Range of Stipple Counts (per 30 fields)		
Lowest count	(H)	37
	(A)	30
Highest count	(H)	300
	(A)	134
Average count	(H)	118
	(A)	75

* (H), hospital cases; (A), ambulatory cases.

It is admitted by its advocates that rapid deleading is to be avoided, and, therefore, it is advisable to immobilize the lead in the bony structure during the acute toxic episode. It is also stated that deleading is then advisable, since the liberation of this store of lead is an obvious factor in the onset of toxic lead episodes during metabolic upsets. It is this latter statement which apparently is the principal argument used by the advocates of deleading. It sounds almost convincing, but in my experience, in treating over 60 patients with lead intoxication and hundreds with absorption, not one patient had any such metabolic upset, liberating stored lead to such a degree as to be incapacitated. I admit that some conditions can produce some free circulating lead into the blood stream, but the results are negligible and the persons are symptom free as far as lead is concerned.

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[4] Schilling, H. D., and Hopper, K. B.: Calcium and Phosphorus Studies, Bull. Johns Hopkins Hosp. **58:** 196, 1946.

[5] Gray, K., and Greenfield, I.: New Concepts in the Treatment of Lead Poisoning, New York State J. Med. **28:** 1313, 1938.

[6] Litzner, S.; Weyrauch, F., and Barth, E.: Untersuchungen über Bleiausscheidung durch die Nieren und ihre Beeinflussung durch bestimmte Kostformen and Arzeimittel beim Menschen, Arch. f. Gewerbepath. u. Gewerhyg. **2:** 330, 1931.

[7] Gray, I.: Recent Progress in the Treatment of Plumbism, J. A. M. A. **104** 200 (Jan. 19) 1935.

[8] Holmes, H. W.; Campbell, K., and Amberg, E. J.: *The Administration of Vitamin C in the Treatment of Lead Poisoning*, J. Lab. & Clin. Med. **24:** 1119, 1939.

[9] Belknap, E. L.: Control of Lead Poisoning in the Worker, J. A. M. A. **104:** 205 (Jan. 19) 1935.

[10] Kety, S., and Letonoff, T. V.: The Treatment of Lead Poisoning by Sodium Citrate, Am. J. M. Sc. **205:** 406, 1943.

[11] Kehoe, R. A.; Cholak, J.; Hubbard, D. M.; Bambach, K., and McNary, R. R.: Experimental Studies on Lead Absorption of Excretion and Their Relation to the Diagnosis and Treatment of Lead Poisoning, J. Indust. Hyg. & Toxicol. **25:** 71, 1943.

[12] Oliver, T.: Lead Poisoning from the Industrial, Medical and Social Points of View, New York, Paul B. Hoeber, 1914.

[13] Johnstone, R. T.: Occupational Medicine and Industrial Hygiene, St. Louis, C. V. Mosby Company, 1948.

Table 4.—*Disability Studies*

Nonhospital Cases (27)	
Average loss time	15 days (1-47)
Number cases with no loss time	8
Number cases with loss time	19
Number cases with permanent disability award	3
Average award	5% (3-5-7)
Hospital Cases (35)	
Average loss time	31 days (7-55)
Number cases with permanent disability award	4
Average award	7.5 %

Belknap[14] stated, ". . . after an absence from lead exposure of one to two years, lead intoxication practically never develops." Aub[1] stated, ". . . from a theoretical standpoint, deleading is advisable, but from a practical point of view, the answer is dependent on which procedure will advance most promptly to a recovery of health." I agree wholeheartedly with this declaration, but one can hardly miss the implication in this statement that deleading is not advisable from a practical point of view. In other words, it does not appear to be the method of choice.

It has also been stated that circulatory lead may cause tissue damage but stored lead in the bones produces no deleterious effects. If this is so, and, so far as is known, it has been accepted by most men in this work, then what is the justification for employing a method as therapy which is acknowledged by its advocates as dangerous and uncertain as to its ultimate results? No method is available for the complete removal of lead from the body, and I can see no reason for deleading when it is well recognized and accepted that there is a normal metabolism governing the intake and output of lead from the body. It is my opinion that no remedy has been found to justify the dangers inherent in deleading. It is my contention that it is more advisable not to employ deleading procedures, in view of the fact that simple immobilization of lead within the skeletal structures of the body is the most rapid and safe method of bringing about a state of well-being.

My method of treatment during the convalescent (subacute) and chronic phases of this disease is purely symptomatic (associated with observations of the blood). This is simple, direct and productive of excellent results.

In the subacute or convalescent stage, I prescribe as follows:

1. Regular diet
2. Mild laxatives
3. Calcium wafers
4. Iron and vitamin B complex therapy for anemia and as a tonic
5. Monthly red blood cell counts and determination of stippling and hemoglobin
6. No further lead exposure

During the chronic phase, I use the following routine:

1. Permanent removal from exposure
2. Fresh air occupation (yard gang)
3. Adequate diet
4. Multiple vitamin therapy for fatigue, malaise and the like
5. Laxatives for constipation
6. Calcium, oral therapy, if indicated

COMMENT

Intravenous calcium therapy must be continued for at least three to four days after all symptoms of colic have disappeared, and withdrawal must be gradual—otherwise all symptoms may return. Calcium wafers (oral therapy) are given after discontinuance of intravenous therapy. No iron or calcium (oral) should be given during the acute phase, as I do not believe that they can be absorbed and utilized. Vitamins, milk and special diets are acceptable, but their value is questionable.

Permanent removal from lead exposure is obligatory. Hospitalization is preferred in all cases except in cases of mild disease; I believe that calcium should be given intravenously around the clock for quick and best results.

CONCLUSIONS

1. Deleading is not advocated because: (1) it is dangerous, (2) it prolongs hospitalization, (3) it prolongs length of disability and (4) results are uncertain.

Table 5.—*Résumé of Permanent Disability Cases*

Patient	Age, Yr.	Exposure, Weeks	Loss of Time, Days	Days Observed After Acute Phase	Cell Counts Returned to Normal, Months	Disability (Permanent) Award, Percentage
Nonhospital						
A. A.	27	16	12	441	7	7.0
J. A.	25	4	60	60	5	5.0
S. B.	36	20	47	150	2	3.0
Average						5%
Hospital						
E. H.	30	4	30	450	3	7.5
S. W.	40	8	20	87	3	7.5
W. O.	24	32	39	62	3	7.5
J. H.	22	22	22	49	2	7.5
Average						7.5%

2. Calcium immobilization therapy is advocated because: (1) it is simple and safe, (2) it shortens hospitalization, (3) it shortens length of disability and (4) results are certain.

It is therefore my opinion that until such time as some satisfactory deleading procedure is found, which will be simple, safe and able to shorten present length and amount of disability, I shall advocate calcium therapy as the method of choice.

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[14] Belknap, E. L.: Lead Poisoning: Criteria for Diagnosis, Indust. Med. 9: 505, 1940.

PHYSIOLOGIC EFFECTS OF INDUSTRIAL SOLVENTS

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A glance at the stock shelves of any neighborhood store, even in a small town, shows that chemicals are playing an increasingly important part in our daily life. The grocer sells synthetic detergents; the hardware store, paints, laquers, paint and stain removers; the drugstore, insecticide sprays; the corner gasoline station offers window cleaners and all manner of chemicals for service of the automobile, and the local tailor installs modern dry cleaning equipment using the latest synthetic solvents. All of these new materials are intended to simplify or to beautify modern life, and often they actually do so. From the point of view of the physician, however, chemicals may complicate rather than simplify health problems, since, if the materials are not used with adequate information or intelligence, new and unexpected hazards are introduced.

The health hazards, which have so long been regarded as "industrial," are no longer purely such. Manufacturers of chemicals and those who fabricate them into new goods are, of course, confronted with complex problems of health in their workers, and the proper protection of workers by physical means and medical observation is an essential phase of modern industrial organization. Yet the health problems which may arise from the use of the same chemicals in the home or by small business can assume a more serious aspect than the difficulties met in organized industry, for scientific control of exposure to chemicals is not to be expected in a home, nor can it be expected to reach the same efficiency in a small business as in a large plant. It follows that, as the making and using of chemicals increases, so also increases the demand on the general practitioner for at least a working knowledge of their general action. This does not mean that each physician must become a toxicologist. In my opinion chemicals are of minor statistical significance as a primary cause of serious morbidity or mortality, particularly in comparison with the numerous injuries and deaths caused each year by a single physical agent, the automobile. But the entrance of synthetic chemicals into the body can add important physiologic loads to those to which one is already subjected by climate, infectious diseases and physical labor. Such additional loads may assume great significance in the continuing battle with the environment.

USES AND EFFECTS OF SOLVENTS

The present discussion concerns a varied group of chemicals included under the term "solvents." The widespread use of such materials, the mode of application and certain physical properties make them important as a source of health hazards. In industry, solvents facilitate the separation of desired materials from impurities and the final preparation of highly pure products. They are also employed to remove grease and other contaminants from metal. In the household and the small plant, the latter use predominates. In industry, the value of a solvent lies not only in its ability to dissolve required materials but also in its property of being volatile at suitable temperatures so that the dissolved material can be recovered in solid form. Frequently, also, a solvent is chosen because it can be recovered easily by condensation. Solvent recovery systems are highly important, since the loss of the solvent vapor to the atmosphere may be costly. Such systems may be very complicated.

It is this property of volatilization that makes solvents important in any study of health problems due to chemicals. A solid or a liquid remains in its container unless by deliberate interference or carelessness it is dispersed into the atmosphere of a workroom or a home. But a liquid may exert a vapor pressure at its surface at all ordinary temperatures, and the vapor does not stay in one place but may be diffused or be carried by air currents away from the container to all points of a work area or a home. The removal of the vapor at the surface of the liquid leads to further evaporation of the liquid and further addition of vapor to the atmosphere. Special equipment is needed to prevent dispersion of vapors from solvents into the atmosphere, and such equipment is not found in the household and may not be available to the small business user of chemical solvents.

Both the liquid solvent and its vapor can affect the human body, but the relative ease of production of physiologic effects is far greater with the vapor than with the liquid. The surface area of the body of an average man is about 2 square meters. Most of this is usually protected by clothing from easy contact with the liquid, and much of the surface area of the body is not permeated by liquids or vapors with great ease. By contrast, at each inspiration, the lungs offer a capillary surface area of about 100 square meters to the inhaled atmosphere, and through this area inhaled material, if in the state of vapor or gas, is very easily absorbed into the blood stream.

Solvents in contact with the skin may remove natural fats and oils, leaving a dry cracked skin which offers an easy path for infection. If the solvent is in contact with the skin under clothing, so that it cannot evaporate, it will often produce a severe burn, comparable to the ether burn formerly seen so often in open cone anesthesia. For this reason, conclusions as to the ability of solvents to irritate the skin or to cause allergic dermatitis should not be based on "patch tests" in which the liquid is applied to the skin under cover.

Solvents can actually penetrate the skin far more often than is generally believed, entering lymphatic or blood streams and eventually being dispersed throughout the body. The studies of Hudack and McMaster[1] show how easily entrance through the skin can be made by liquids or even solid particles. One can conclude only that the exposed parts of the body are not nearly so well protected by the skin as was formerly supposed.

The greater health hazard from solvents is obviously due to inhalation of their vapors. Materials entering the lungs in low concentration in vapor or gaseous form

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This paper and the three preceding papers are part of a symposium of seven papers. The three remaining papers, by Dr. Rex H. Wilson, Dr. L. E. Hamlin and Dr. Nelson P. Anderson, will appear in THE JOURNAL next week.

Read in a Joint Meeting of the Section on General Practice and the Section on Preventive and Industrial Medicine and Public Health at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

[1] Hudack, S. S., and McMaster, P. D.: The Lymphatic Participation in Human Cutaneous Phenomena: A Study of the Minute Lymphatics of the Living Skin (Intracutaneous Injection of Pontamine Sky Blue Dye), J. Exper. Med. 57:751-774 (May) 1933.

can be absorbed into the capillary blood stream to the extent of 75 to 90 per cent of that concentration. The general laws governing such absorption are well described by Henderson and Haggard.[2] The rate of absorption of a vapor or a gas will depend on its concentration in the inhaled air in relation to its concentration and solubility in the blood. So long as the blood passing through the lungs is not saturated with the absorbed material, it can continue to take up more and more. If body tissues can absorb the chemical, they will to that extent diminish the concentration in the blood and so lead to further absorption through the lungs into the blood. Of course, there will eventually approach a time at which the tissues and the blood are saturated, and no more vapor can be absorbed through the lungs. However, before this saturation is reached, there is usually specific action of the chemical, which will drastically change either the respiratory cycle or the flow of blood through the lungs.

Since the absorption of chemicals presented in vapor form to the lungs depends on the exposure of a tremendous area of capillary bed at each inspiration, and on the amount of blood present in the lungs, it is obvious that any situation which leads to increased respiratory exchange or increased blood flow through the lungs will necessarily increase the rate of absorption of the chemical. For this reason, a given concentration of vapor in the atmosphere of the workroom or a home could be harmless to one sitting quietly, but dangerous to that same person performing physical labor, which requires a greater blood flow through the lungs, more frequent oxygenation of that blood flow to satisfy the oxygen demands of the tissues and, therefore, increased respiratory exchange.

Removal from the contaminated atmosphere stops the absorption of vapor through the lungs, and a reverse process of exhalation may then start. The partial pressure of the vapor in blood passing through the lungs becomes greater than that in the alveolar air. The material passes into the alveoli from the blood capillaries and is gradually diluted and washed out of the alveoli by each inspiration of uncontaminated air. The concentration of the chemical in the blood will thus be depleted fairly rapidly. If the tissues, now in contact with blood containing a low concentration of chemical, can give up that which they have absorbed, there may be a progressive and eventually complete removal of the foreign material from all parts of the body. This process may take several hours. Any one who has used ether as a solvent or anesthetic knows that its odor persists in the breath, and its taste in the mouth, for hours after the use is stopped.

Conditions which increase the flow of blood through the lungs or the rate and depth of respiration of uncontaminated air will facilitate removal of the inhaled chemical. But the most easily applied means of doing this—exercise—should be used with great care, for, as shall be seen later, even low concentrations of solvent vapors may affect the arterial and venous circulation and the tonus of skeletal muscles so that the physiologic load produced by muscular activity may be harmful rather than helpful.

The term "solvents" covers a large number of chemical types. One often talks of subgroups as aliphatic or aromatic hydrocarbons, or chlorinated hydrocarbons and so on, with the implication that the specific toxicity of the chemical groups can be so designated. This is a serious error. Because tetrachlorethane and carbon tetrachloride appear to have a pronounced action on the liver, it is wrong to state that, in general, chlorinated hydrocarbons affect the liver. Because benzol produces serious interference with the metabolism of the bone marrow, it is not correct to infer that aromatic hydrocarbons as a group produce such interference. There is no relationship as yet proved between chemical constitution and pharmacologic action, and the more one knows about the ultimate specific pathologic conditions produced in poisoning by modern chemicals, the less one is inclined to argue by analogy from chemical structure.

At the moment, I am not concerned with the ultimate action on specific tissues of inhaled solvent vapors or liquid solvents absorbed through the skin, but rather with the general physiologic effects produced while the blood remains only partially saturated by inhaled vapor and while there has been no appreciable concentration of the chemical in any particular organ or tissue. At this stage a series of symptoms and signs may appear, which is nonspecific for any chemical structure or any physical condition of the chemical. This series of symptoms and signs may be elicited by any chemical which enters the body and is generally distributed through the tissues. The exact mechanism of production of this physiologic picture is not clear. Fundamentally, it is probably due to interference with tissue respiration. Specific differences in chemicals may lead to specific types of interference with factors in the complex process of tissue respiration. Yet, the end result is the same, namely, an insufficient supply of oxygen to the tissues or inability of the tissues to use effectively the oxygen supplied to them.

SYMPTOMS OF INHALATION

The symptoms produced by inhalation of the vapors of solvents include unusual fatigue, lassitude or irritability; headache; gastrointestinal disturbances (nausea, gas on the stomach, loss of appetite, epigastric pain); palpitation; precordial pain; dizziness; pain or numbness or tingling in the extremities, and dyspnea on slight exertion. These symptoms are listed roughly in the order of their appearance as exposure to the vapor becomes more intense or is more prolonged. They are not all necessarily found in one patient, but unusual fatigue is prominent in most cases. Some of these symptoms could be ascribed definitely to the action of the vapor on the central nervous system or its blood supply. Thus, in many cases, the type of headache is that which would be produced by dilation of cerebral blood vessels, and the gastrointestinal disturbance is not due to any particular unpleasant taste or odor of the vapors, but would seem to be due to unusual activity of the autonomic nervous system. The precordial pain could be produced by mere deprivation of oxygen. So also could dizziness and palpitation. Taken as a whole, this group of symptoms (as well as some of the signs observed) is similar to that associated with adrenal cortical insufficiency, but proof is lacking that they are due to this. The gastrointestinal disturbance resulting from exposure to vapors of solvents and leading to loss of appetite and, therefore, to a poor state of nutrition, can build up a vicious cycle. With poor nutrition, fatigue may be increased. So also might dizziness. So long as the exposure to the chemical is continuous or frequently repeated, it might be extremely difficult to find a point of breakage of the cycle.

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[2] Henderson, Y., and Haggard, H. W.: Noxious Gases and the Principles of Respiration Influencing Their Action, American Chemical Society Monograph Series, New York, Chemical Catalog Company, 1927.

The most easily detectable sign of inhalation of solvent vapor is disclosed by the measurement, under standard conditions, of arterial blood pressure. A low concentration of vapor, just adequate to produce any physiologic response, increases the diastolic pressure without causing a comparable increase in systolic pressure. Frequent repetition or a continuance of this grade of exposure may produce an ever rising diastolic pressure, which may eventually become fixed at levels above 90 mm. I have seen situations in which a solvent at a concentration as low as one-third part per million has produced a diastolic blood pressure of over 100 mm., sitting, in young adults. With a high diastolic pressure but no proportional increase in systolic pressure, there is a chronic low pulse pressure.

Apperly and Cary,[3] after a study of pulse pressure-pulse rate product and the arteriovenous oxygen difference, conclude, ". . . pulse pressure serves as a rough but valuable indication of the reciprocally varying needs and blood supply of the viscera and muscle masses of the body. . . . A high pulse pressure . . . indicates that a larger (and the low pulse pressure of circulatory failure a lower) proportion of the total blood volume is being shunted through the arms (and possibly all muscle masses)." If one accepts this conclusion, a chronic low pulse pressure, without a relative increase in pulse rate, indicates an inadequate supply of oxygen to the muscles. This situation must lead to easy fatigue. If the pulse rate becomes unusually high (e. g., above 100 per minute), acute circulatory collapse can occur, and this can be fatal. Yet, even in such fatal cases, there is absolutely no specific organ pathologic condition detectable at autopsy.

I have never seen systolic hypertension as such produced by exposure to the vapor of a solvent or any other type of chemical, but systolic hypertension can enter the picture if, with a diastolic pressure chronically above 90 mm. as the result of exposure to chemicals, there is added psychic stress, such as financial worry, worry about the family or difficulties in the job.

Inhalation of high concentrations of solvent vapors leads first to a depression of systolic pressure without a fall in diastolic pressure. Again, the pulse pressure is lowered, and, if the situation is allowed to continue, fatigue may result. Increase of the intensity or the duration of exposure may lead to a fall of diastolic pressure with a temporary increase in pulse pressure. Eventually, all three, systolic, pulse pressure and diastolic pressure, are lowered. In persons frequently exposed to volatile chemicals, systolic blood pressures below 100 mm. are common with or without diastolic blood pressure below 60 mm.

When the changes in arterial blood pressure are such as to produce a chronic low pulse pressure and, therefore, a chronic deficiency of oxygen to the muscles, the fatigue and lack of tonus of the musculature, particularly in the abdominal wall and lower part of the body, will result in a low venous return to the right side of the heart. Unless this situation is balanced by an increase in pulse rate, the low venous return may cause an abnormally low cardiac output. With poor venous return and poor cardiac output, there may frequently be extreme dizziness on standing or actual syncope. Recovery from syncope occurs rapidly once the patient falls to the ground, but recovery may not occur if the patient falls in cramped quarters in such a position that the head cannot be lower than, or as low as, the feet.

These signs of abnormal circulation and the unusual fatigue accompanying them may exist for weeks and months. It may be extremely difficult to find their source unless the physician knows that the patient is using volatile chemicals. Patients showing these symptoms and signs may often be considered as suffering from neurocirculatory asthenia or may be classed as subjects for psychosomatic study. As long as the condition exists, the patient may never know what it is to feel really well. Yet, the moment the source of exposure to the chemical causing the condition is discovered and removed, these patients will revert to normal within three weeks to a month, only to regress rapidly if the inhalation of vapor is renewed. It is important to note that a patient incompletely recovered from the circulatory action of one chemical may be extremely susceptible to the physiologic action of a second substance in concentrations which may not have affected the patient previously. Further, the presence in the atmosphere of low concentrations of two or more vapors may lead to an intensity of physiologic action not predictable from consideration of the individual concentrations of the contaminants or even the total of those concentrations.

This simple picture of adverse physiologic trends is not usually accompanied with any indication of specific organ injury. It may be present for weeks or months before the slightest changes could be detected, for example, in the blood picture, if the particular solvent is such as to affect the blood picture. But eventually, unless conditions are remedied, there may be specific organ injury, and a classic picture of poisoning by the particular chemical is observed.

Knowledge gained by frequent observation of the nonspecific phase of physiologic action of chemicals has often tempted me to suggest that the specific organ injury which occurs much later may also be due to local disturbance of circulation. Evidence for this hypothesis is not lacking. Glynn and Himsworth[4] referred to Loeffler and Nordmann, who, using the quartz rod technic for direct observation of the liver in anesthetized animals, observed a sharp narrowing of the hepatic sinusoids in mice and rats within fifteen minutes of inhalation of chloroform. The portal veins remained normally patent. The changes in the sinusoids persisted for several hours. After ten to twenty-four hours, the centrilobular sinusoids dilated, but the blood flow was still retarded. Return to normal took from three to ten days. Wakim and Mann[5] made a similar study. When they momentarily held a swab soaked in carbon tetrachloride to the nose of a rat, there was an immediate, but transient, constriction of liver sinusoids. Rats exposed to carbon tetrachloride vapor for as long as thirty minutes showed a severe and persistent reduction of intralobular circulation. Many sinusoids were obliterated. Most of the sinusoids were still obliterated twenty to twenty-four hours after exposure. Most of those still open were supplied by the hepatic artery. The appearance of the liver and its circulation had returned to normal two to four weeks later. A similar picture followed subcutaneous injection of carbon tetrachloride. Glynn and Himsworth[4] repeated the experiment with carbon tetrachloride and made the same observations. From these studies it would seem possible that even a transient exposure to certain solvents could drastically affect circulation to specific tissues. The ultimate pathologic condition is not necessarily due to direct action of the chemical on the particular tissue showing injury, but to a secondary result of persistently diminished blood supply, i. e., chronic hypoxia. Such a process would make clear the increased susceptibility of the liver to poisons when the patient is suffering from anoxia or malnutrition and the beneficial effects of administration of oxygen or proper diet.

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[3] Apperly, F. L., and Cary, M. K.: Relation of Arterial Pulse-Pressure to Arterio-Venous Oxygen Difference, Especially in Arterial Hypertension, Proc. Soc. Exper. Biol. & Med. **48**: 402-405 (Nov.) 1941.

[4] Glynn, L. E., and Himsworth, H. P.: The Intralobular Circulation in Acute Liver Injury by Carbon Tetrachloride, Clin. Sc. **6**: 235-241 (Feb. 16) 1948.

[5] Wakim, K. G., and Mann, F. C.: Effect of Experimental Cirrhosis on Intrahepatic Circulation of Blood in Intact Animal, Arch. Path. **33**: 198-203 (Feb.) 1942

PHYSIOLOGIC ACTION OF SOLVENTS AS CONTRIBUTORY FACTOR

I have already stated my opinion that solvents are not statistically important as a primary cause of serious morbidity or mortaltiy. I would repeat this and amplify it by the opinion that the nonspecific physiologic action of solvents could become an important contributory factor in total morbidity from disease or physical agents. The circulatory deficiencies caused by chemicals render the victim less able to bear other physiologic loads imposed by malnutrition, infection, extreme conditions of temperature and humidity, alcoholism or other addictions, and even conventional therapy with modern synthetic drugs, such as the sulfonamide derivatives. Every one will recognize the list of symptoms which are produced by exposure to volatile solvents as a list common in disease regardless of its origin. There is often no more specificity in the early physiologic trends produced by infection than has been observed with chemicals. Life depends on proper supply of oxygen to the tissues. Two major physiologic systems are concerned with this supply—the respiratory and the cardiovascular. Of these, the cardiovascular is the harder to maintain once it shows serious evidence of failure. Cardiovascular diseases are the primary cause of morbidity and mortality among young and old. The introduction of any new factor which may affect the efficiency of the cardiovascular system must at once assume importance.

FATIGUE

There is a further reason for giving careful attention to the nonspecific phase of physiologic action of chemicals. Impaired circulation results in fatigue. There is a demonstrable relationship between impaired circulation, fatigue and accidents. Accident proneness need not be due, as psychiatrists suggest, to "constitutional inadequacy." It may be due to physiologic inadequacy. A worker (or a housewife), normally careful and, therefore, not often the victim of accidents, may become temporarily accident-prone by injudicious use of a chemical solvent.

COMMENT

The remedy for this situation is, first, education of the manufacturer and vendor of solvents to label them properly, indicating the degree of hazard and the physiologic route, and, second, education of the user to read labels or, if no label is present on the package, to be careful not to spill the solvent on skin or clothing and never to use it in confined spaces or in any situation where there is not good ventilation. Finally, the physician can do much to remedy the situation. In taking the history of a patient, whether in industry or not, he should include details of work performed, use of solvents or special equipment. When no definite evidence of infection or pathologic change is discovered, more details of work performed preceding, or at the time of, onset of illness should be obtained. Last, but by no means least, the physician who fails to discover any ordinary source of the patient's malaise but does obtain some history of exposure to a solvent should not at once conclude that serious poisoning by that particular solvent has occurred. The whole picture of early action of solvents (or other chemicals), in the absence of pathologic changes may be one of general debility, nervousness and apprehension. A definite statement on the part of a physician that such and such a chemical has poisoned the patient will do nothing to allay alarm. It may often introduce a serious psychic factor into the picture—a factor which no amount of subsequent discussion can entirely remove. The better plan is to advise the patient carefully on proper use of the materials involved, to assure him or her that a few weeks without exposure will lead to complete recovery and in the meantime to prescribe adequate rest, proper nutrition and proper, but not excessive, recreation in the open air. If the patient is the operator of a small business using solvents, the physician can do much by advice about hygienic working conditions. Such advice appears much more practical and is deprived of a purely "philosophic" atmosphere by a visit to the place of business, where the physician can observe working conditions and discuss improvements. He will, by such a practice, help both his patient and himself, for only by acquiring a practical knowledge of the use to which modern chemicals are put by the housewife or the small business operator can the physician educate himself in an increasingly important phase of general medical practice.

The Psychopath and Human Misery.—If one could assess the human misery produced, it might well be found that the psychopath has a blacker record than either the neurotic or the psychotic. The neurotic knows he is ill, is only too willing to seek medical aid, and is usually prepared to cooperate; the psychotic's illness is patent to his friends, they can persuade or compel him to receive treatment, and his detention can continue until he is well; with the psychopath, however, it is always the rest of the regiment who are out of step. He has been let down or unfairly treated; it is not he but society which must put itself right; as for seeing or cooperating with the doctor, it is an insult. So the psychopaths in our midst go through life creating trouble. In the factory or office, in the club or society, in the hospital or nurses' home, they build up around themselves a circle of discontent, not the divine discontent of the rebel or reformer, but the narking, carping, querulous complaining of men and women with a grievance against society. I must confess to a fascination in the psychopath, ever since I realized that Hitler and his gang were psychopathic criminals carried to the top on a wave of uncured unemployment. They had all the superficial attraction which makes the psychopath the ideal "con" man. And in Trevor-Roper's book, "The Last Days of Hitler," one can study the miserable spectacle of the psychopath in defeat. One of the problems of politics is to keep psychopaths away from the top; and in Britain we have solved it by making the top comparatively unattractive.—Stephen Taylor, M.D.: The Psychopath in Our Midst, a Danish Solution; *The Lancet,* Jan. 1, 1949.

AUREOMYCIN IN TREATMENT OF EXPERIMENTAL AND HUMAN TULAREMIA

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The new antibiotic, aureomycin, first described by Duggar,[1] has been shown to exert specific effect when administered to patients suffering with diseases caused by gram-negative[2] and certain gram-positive organisms.[2b] Detailed reports of its usefulness in rickettsial infections have now been recorded, and aureomycin perhaps exerts its greatest influence in this group of diseases.[3] Favorable results from its employment in lymphogranuloma inguinale have been published.[4] No toxic effects other than nausea and occasional diarrhea attributable to the drug have been observed in our experience or in the patients who have been treated with this agent and reported in the medical literature.

We have been interested in the chemotherapy of tularemia since 1947, when para-aminobenzoic acid (PABA) was observed by us to exert slight benefit in mice experimentally infected with Bacterium tularense. This effect, however, did not in any way approach that achieved with streptomycin, but in infected mice treated with para-aminobenzoic acid survival was prolonged in comparison with untreated controls. Results in a patient observed during the summer of 1948 tended to verify these observations. The patient, a 70 year old Negro, was treated with para-aminobenzoic acid for nine days because he was thought to have Rocky Mountain spotted fever when first observed. He gave a history of tick contact and the absence of demonstrable rash was attributed to the dark color of his skin. The disease was subsequently identified as that of tularemia through the demonstration of agglutinins in rising titer for B. tularense up to 1:10,240. The patient improved with para-aminobenzoic acid therapy with reduction in toxicity and return of temperature to normal in three days. The medication was discontinued after six days of normal temperature. Three days later a febrile relapse occurred, which subsided spontaneously without specific therapy over a period of eight days, and the patient fully recovered.

The role of streptomycin in the treatment of tularemia is well known.[5] Rabbit fever perhaps affords this antibiotic its clearest and most favorable indications for use. Nevertheless, search must continue for other effective agents, since streptomycin is not without certain undesirable side effects, developing particularly after prolonged usage. Smith and his co-workers,[6] in their early work on chloromycetin®, reported in vitro sensitivity of B. tularense to this antibiotic at approximately 0.4 microgram per cubic centimeter.

In experimentally infected mice we have compared the effectiveness of streptomycin, aureomycin and chloromycetin® and recently had the opportunity to treat 3 patients with tularemia with aureomycin. These observations are the basis for this report.

METHODS AND MATERIALS

Mice weighing 20 Gm. were inoculated intraperitoneally with B. tularense in 0.1 cc. amounts of varying dilutions. The strain of tularemia was secured from Dr. Carl Larson of the United States Public Health Service at Bethesda, Md., who had recently isolated the organism from a patient. Stock cultures were grown on blood glucose cystine agar, which produced luxuriant colonies in three to four days. Bacterial suspensions used for inoculations were prepared from these three day agar slants. B. tularense was demonstrated frequently in smears made from the spleens of dying mice and stained by Wayson's technic. B. tularense was recovered by inoculation of material obtained from the exudate of spleens and livers of autopsied or killed animals on blood glucose cystine agar incubated at 37 C.

The antibiotic agents were administered intramuscularly three or four times a day, as follows: streptomycin 0.75 mg., aureomycin 1.0 mg. and chloromycetin® 0.75 mg. per dose. The antibiotic was administered shortly after the infecting dose in most instances, but several groups of mice were treated after eighteen hours. Treatment time ranged from three to four days. In the third animal experiment the infectious inoculum of B. tularense was prepared from the stock agar slant in the dilution of 10 minus 1. A series of six dilutions were then prepared (table 2) in which dilution 6 contained about 3,000 organisms per cubic centimeter.

Aureomycin was supplied by the Lederle Laboratories Division of the American Cyanamid Company and the chloromycetin® by the Department of Clinical Investigation of Parke, Davis & Company.

RESULTS OF EXPERIMENTS WITH MICE

The results of three separate experiments are best shown graphically in tables 1 and 2.

In table 1 it will be noted that all mice, treated and untreated, eventually succumbed to B. tularense infection. In the first experiment the mean hour of death in the aureomycin group was 312, as compared with 36 and 32 hours in the streptomycin and chloromycetin® groups, respectively. The controls died in 23.4 hours. In experiment 2 (table 1), in which the infectious inoculum

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Miss Ann Merideth and Miss Audrey M. Funk gave technical assistance, and Dr. Carl Larson gave helpful advice.

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1. Duggar, B. M.: Introductory Paper, read before the Conference of Section of Biology, New York Academy of Science, July 21, 1948.

2. (a) Bryer, M [illegible] Chandler, C. A.; Bliss, E. A., and Long, P. H.: [illegible] and Clinical Investigations, J. A. M. A. 138: [illegible] (b) Finland, M.; Collins, H. S., and Paine, T. F., Jr.: Aureomycin: A New Antibiotic, J. A. M. A. 138: 946-949 (Nov. 27) 1948.

3. Ross, S.; Burke, F. G.; Rice, E. C.; Schoenbach, E. B.; Bischoff, H., and Washington, J. A.: Aureomycin: Preliminary Report of a Clinical Trial, Clin. Proc. Child. Hosp. 4: 315-331, 1948. Cooke, C.: Rocky Mountain Spotted Fever Treated with Aureomycin, J. A. M. A. 138: 885 (Nov. 20) 1948.

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5. (a) Keefer, C. S.: Streptomycin in Infections, report of National Research Council, J. A. M. A. 132: 4-11 (Sept. 7) 1946. (b) Atwell, R. J., and Smith, D. T.: Primary Tularemia Pneumonia Treated with Streptomycin: Report of Two Cases, South. M. J. 39: 858-860 (Nov.) 1946. (c) Hunt, J. S.: Pleuropulmonary Tularemia: Observations on 12 Cases Treated With Streptomycin, Ann. Int. Med. 26: 263-276 (Feb.) 1947. (d) Heather, A. J., and Scott, E. G.: Tularemia: Case Treated with Streptomycin, Delaware State M. J. 18: 148-150 (July) 1946. (e) Hartnett, G. W., and Mollica, S. G.: Tularemia: Treatment of Two Cases with Streptomycin, South. M. J. 39: 774-777 (Oct.) 1946. (f) Berson, R. C., and Harwell, A. B.: Streptomycin in Treatment of Tularemia, Am. J. M. Sc. 215: 243-249 (March) 1948.

6. Smith, R. A.; Joslyn, D. A.; Gruhzit, O. M.; McClean, I. W., Jr.; Penner, M. A., and Ehrlich, J.: Chloromycetin: Biological Studies, J. Bact. 55: 425-448 (March) 1948.

was more dilute, the same proportionate results were obtained.

It will be observed in table 2 that there were no fatalities in aureomycin-treated mice inoculated with the fifth and sixth dilutions, whereas in the streptomycin-treated animals deaths occurred in these dilutions. In this latter group, however, the mean day of death was much later than was observed in the untreated control group. In the sixth dilution of the infectious inoculum there were approximately 3,000 organisms (B. tularense) per cubic centimeter.

Table 1.—*Chemotherapeutic Effect Obtained in Mice Infected with B. Tularense*

Experiment No.	Type of Drug	Mg./Day Mouse *	Days Treated	Number of Mice	Inoculum	Mean Hour of Death
1	Aureomycin.......	2.25	3	5	0.1 cc.	312
	Streptomycin.....	2.25	3	5	of a 1:1	36
	"Chloromycetin".	2.25	3	5	suspen-	32
	Controls..........	....	..	..	sion	23.4
2	Aureomycin.......	3.0	3	5	0.1 cc.	288
	Streptomycin.....	2.25	3	5	of a 1:6	99.9
	"Chloromycetin".	2.25	3	5	suspen-	36.4
	Controls..........	....	..	10	sion	28

* Administered in three divided doses every eight hours.

REPORT OF CASES

Case 1 (fig. 1).—The clinical record of a patient with ulceroglandular tularemia complicated by pneumonia and treated with aureomycin is recorded in detail as follows. The patient was a 53 year old Negro who killed and skinned a rabbit on November 15, the first day of the hunting season. After five days he noticed malaise, cough and fever, for which he received a sulfonamide drug for an unknown period. The temperature ranged between 100 and 105 F., and about four days prior to admission he complained of a tender mass in the right axilla. On admission to the University Hospital, on December 2, he was in a semidelirious toxic state, the temperature was 103.5 F., breathing was quickened, speech was muttering in type and the patient was incoherent. The conjunctivas were moderately injected, and there was inability to protrude the tongue. There was moderate stiffness of the neck with definite limitation of flexion. The blood pressure was 118 systolic and 70 diastolic; the pulse rate was 120 and of poor quality. The heart was not enlarged, and the sounds were normal without arrhythmia. There was suppression of breath sounds in both lungs, elicited best posteriorly, where there were numerous rales heard. There was no sign of pleural fluid. A roentgenogram of the chest taken on admission revealed bilateral pulmonary infiltration. According to Dr. Charles Davidson, there was a homogeneous lobular infiltration present in the left lower lung field overlying the third anterior interspace. There were patchy areas of infiltration in the right cardiodiaphragmatic angle, supradiaphragmatic area and the second, third and fourth anterior interspace on the left. There was gaseous distention of the large bowel.

Table 2.—*Chemotherapeutic Effect Obtained in Mice Infected with B. Tularense*

Type of Drug	Mg./Day Mouse	Days Treated	Graded Dilution of Infectious Inoculum * 1	2	3	4	5	6
Aureomycin..........	3.0	4	0/4	2/4	0/4	2/4	4/4	4/4
Mean day of death	...	..	3.25	13.0	14.25	16.25	0	0
Streptomycin........	2.25	4	0/4	0/4	0/4	2/4	1/4	0/4
Mean day of death	...	..	4.0	4.75	6.0	16.25	16.0	13.25
"Chloromycetin"....	2.25	4	0/4	0/4	0/4	0/4	0/4	0/4
Mean day of death	...	..	2.0	3.0	3.0	3.0	3.0	4.0
Controls.............	...	..	0/4	0/4	0/4	0/4	0/4	0/4
Mean day of death	...	..	2.0	2.0	2.0	3.0	3.0	3.75

* The numerator represents the number of surviving mice and the denominator indicates the number of mice used in the experiment.

Abdominal distention was pronounced and appeared to be contributing to the labored respiration. Meningismus was the only abnormal neurologic observation. There was a small fluctuant area on the terminal phalanx of the right index finger from which pus was aspirated. A gland in the right epitrochlear area was peanut sized, and a tender gland in the right axilla was as large as an olive. Material was aspirated from the small ulcer and the epitrochlear gland and blood taken for animal and serologic studies. Sputum could not be obtained because of the extreme degree of dehydration. Intravenous and subcutaneous fluids were administered in liberal quantities and enemas employed to combat the extreme gaseous distention of the intestine.

At 6:30 p. m. on the evening of admission (twelfth day of disease) aureomycin therapy was started, with an initial dose of 100 mg. intramuscularly in buffered solution plus 0.75 Gm. by stomach tube. In the second twenty-four hours 350 mg. intramuscularly and 1.75 Gm. by tube were administered on a four hour schedule. On the third and fourth days 3.0 Gm. and 4.5 Gm., respectively, were given orally every four hours in divided doses. The medicament was then given every six hours in doses of 0.25 Gm. for six days. The total amount of aureomycin administered was 15.25 Gm. orally and 800 mg. intramuscularly.

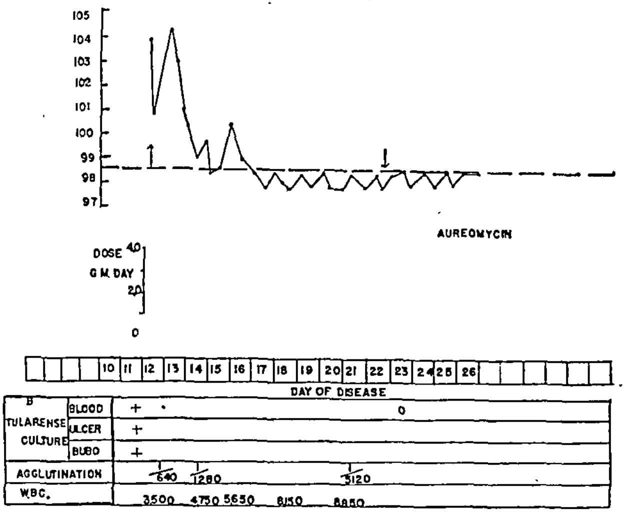
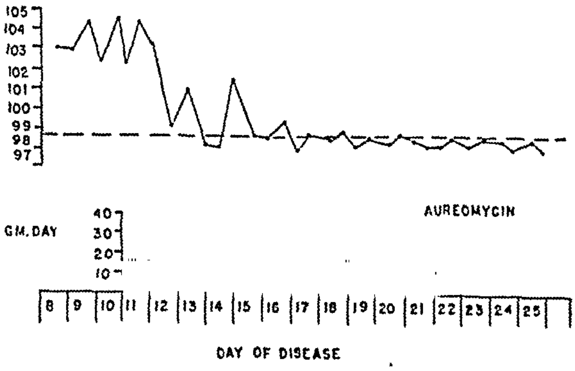


Fig. 1 (case 1).—Chart of results in a patient (male, age 53, 150 pounds [68 Kg.]) with ulceroglandular tularemia complicated by bilateral pneumonia. Treatment was with aureomycin. The upper left hand column of figures shows the temperature (Fahrenheit).

Figure 1 shows the encouraging response. The temperature descended in linear fashion and first reached normal thirty-six hours after institution of therapy. On the following day the temperature rose to 100 F. rectally for a short time and except for one isolated elevation remained normal thereafter. A definite improvement in the mental status was apparent on the evening of the second day, and on the next day (third treatment day) the patient was fully coherent and cooperative. The pulse was of much better quality, although premature auricular contractions were observed. Abdominal distention and discomfort gradually improved and the patient had a formed bowel movement after two days of treatment. The pulmonary signs slowly resolved, and on the ninth treatment day a roentgenogram revealed practically complete clearing of the pulmonary infiltration. The epitrochlear and axillary buboes rapidly resolved, as did the small ulcer on the finger.

Laboratory Data.—The essential laboratory data are recorded in figure 1. Bacteria identified as B. tularense were isolated from the spleens of mice and inguinal glands of guinea pigs, the animals having been previously inoculated with material obtained from the finger lesion, epitrochlear gland and blood of the patient. Organisms were isolated by direct culture from the ulcer and buboes. All strains of B. tularense isolated were agglutinated by antitularemia serum. The agglutinating titer for B. tularense in the patient rose to 1:5,120 (fig. 1).

Studies of hepatic function were performed during convalescence, the results showing no obvious impairment of function of this organ. Results of the thymol turbidity test were negative. The results of the van den Bergh test were 0.3 mg. per hundred cubic centimeters (direct test) and 1.3 mg. per hundred cubic centimeters (indirect test). The serum albumin was 2.87 Gm. per hundred cubic centimeters and serum globulin 2.32 Gm. per hundred cubic centimeters. Convalescence in this patient was rapid, and he was discharged on the sixteenth day after admission.



B TULARENSE CULTURE	SPUTUM	+			
	BLOOD	0			
AGGLUTINATION				1/40	1/280
W.B.C.		10,100	5,050		

Fig. 2 (case 3).—Chart of results in a patient (female, age 46, 150 pounds [68 Kg.]) with typhoidal type tularemia treated with aureomycin. The upper left hand column of figures shows the temperature (Fahrenheit).

Case 2.—The second patient receiving aureomycin was a 40 year old Negro with typhoidal type tularemia complicated by pleuropneumonia and pleural effusion. Aureomycin, started on the sixth day of illness, was administered orally in 0.5 Gm. doses every four hours. The temperature ranged between 101 and 104 F. on the day treatment was begun and reached normal after three and a half days of therapy (ninth day of illness). Thereafter, until the sixteenth day, single evening elevations of temperature reached between 99.2 and 100.4 F. Clear straw-colored fluid was removed from the pleural space on the fifteenth day which revealed no B. tularense after mouse inoculation. Diagnosis in this patient was confirmed by isolation of B. tularense in mice inoculated with blood and sputum. The serum agglutinating titer for B. tularense rose from 1:80 of the eleventh day to 1:1,280 on the fifteenth day of illness. The total amount of aureomycin administered was 32 Gm. The patient was fully convalescent at the time of writing.

Case 3 (*fig.* 2).—The patient, a 46 year old Negro woman with typhoidal type tularemia, received aureomycin on the eleventh day of illness, with an initial dose of 1 Gm. orally and 0.5 Gm. subsequently every four hours. Toxicity was greatly reduced within twenty-four hours, and the temperature reached normal in forty hours. On the third treatment day there was an afternoon elevation to 101.4 F., but thereafter the temperature remained normal. Recovery was prompt and uneventful. Aureomycin therapy was discontinued after ten treatment days (twenty-first day of illness). The total amount administered was 22 Gm. orally. The diagnosis was confirmed by isolation of B. tularense in mice inoculated with sputum. The serum agglutinating titer for B. tularense rose from 1:40 on the fifteenth day of illness to 1:1,280 on the twenty-fourth day.

COMMENT

In our experience with experimental mouse tularemia, utilizing the standards as detailed previously, we have consistently found aureomycin to be more effective than streptomycin in delaying death. We have observed uniformly that if administration of these antibiotics is stopped in the heavily infected mouse death eventually occurs. Chloromycetin® has prolonged the survival time to a lesser extent than aureomycin or streptomycin. Perhaps frequent administration of chloromycetin[3] in infected mice will improve the experimental results in this animal.

It is well known that the results with the use of streptomycin are highly specific. In an analysis of 56 patients treated in Veterans' Administration hospitals Berson and Harwell[5f] reported that definite clinical improvement was observed within forty-eight hours after institution of therapy with streptomycin and the mean time for normal temperature was seven days. In the article first published on streptomycin by the National Research Council[5a] 67 cases of tularemia were reported, in which there were 63 recoveries and 4 fatalities, and in 55 the results were regarded as striking and immediate. There were 2 cases of relapse in this series. In the experience of others there has been universal prompt clinical response following streptomycin treatment in tularemia.[7] In these cases the temperature returned to normal in periods ranging from two to six days. B. tularense has been observed to disappear from the sputum and pleural fluid soon after administration of streptomycin.[5b] In a review of 6 patients with tularemia, at the University Hospital, treated with streptomycin the average duration of fever after institution of therapy was forty-two hours. In 1 of these patients, who was severely ill with pulmonary involvement, the temperature reached normal in ninety-six hours.

One patient (case 1) reported herein had a severe infection with tularemia which would have probably terminated fatally without chemotherapeutic help. His rapid response to aureomycin with prompt recovery, along with that of the 2 other patients treated with this antibiotic, suggests that this agent may prove as effective as streptomycin in the management of this severe disease. The ease of administration of aureomycin, which may be given with equal effectiveness either orally or intramuscularly, and its freedom from toxic complications justify a thorough clinical comparison with streptomycin in tularemia.

SUMMARY AND CONCLUSIONS

Aureomycin has been found to exert significant beneficial effect in mice experimentally infected with tularemia. Chloromycetin® has demonstrated much less effect in vivo. Three cases of tularemia are reported. The response of the patients to aureomycin therapy is regarded as comparable to streptomycin therapy in degree of effectiveness.

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[7] Hunt.[5c] Heather and Scott.[5d] Hartnett and Mollica.[5e]

CLOSURE OF TUBERCULOUS PULMONARY CAVITIES

As Accomplished by Residence in the Immobilizing Lung Chamber

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JAMES H. CULLEN, M.D.
and
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The intention of this paper is to present the use of lung rest, as achieved in the immobilizing lung chamber, as an alternative procedure to bed rest, pneumothorax or thoracoplasty in suitable cases of cavitary pulmonary tuberculosis.

In 1940, residence in the immobilizing lung chamber was shown to provide a normal pulmonary ventilation without discernible motion of the chest or diaphragm and also with disappearance of the voluntary impulse to breathe; it was evident that a degree of lung rest of both lungs and the laryngotracheobronchial tree had been produced which had been impossible of accomplishment with bed rest or other procedures previously used in the treatment of pulmonary tuberculosis.[1] The early encouraging results of this principle of therapy in bilateral advanced disease were then described.[2] Since that time, clinical reports have appeared which indicate that the maintenance of this type of lung rest for a period of four to five months, approximately ten hours daily, resulted in some cases in clearing of exudative lesions and in others in closure of cavities that had resisted other methods of treatment.[3] A follow-up report will be given of 6 of 11 cases of bilateral advanced disease in which arrest of the disease was the consequence of chamber therapy and, in addition, the early observations in a recent consecutive series of 11 patients with chronic pulmonary tuberculosis in 9 of whom closure of cavity with negative sputum took place after a single course of treatment.

The mechanism by which local immobility of the lungs was achieved was the outcome of the development of a method of equalizing the air pressure on both surfaces of the thoracic wall and diaphragm. Alternating positive and negative pressure, 55 to 65 mm. of mercury above and below the atmosphere twenty-five to twenty times a minute, produces a variation in the density of air in a chamber by which ventilation of the lungs of the enclosed patient is achieved. In order to prevent expansion and compression of the chest wall during the initial phases of the positive and negative cycles of pressure, the resistance in the respiratory passageway from the nose to the alveoli had to be accurately and simultaneously counterbalanced.[1b] This was originally accomplished by a chamber within a chamber, but now more simply by a partition around the neck of the patient which is lowered to produce differential pressures between 4 and 8 cm. of water, as required to overcome the tracheobronchial resistance in the individual case. In patients with bronchial asthma, pulmonary emphysema and pulmonary fibrosis, in whom decided narrowing of the bronchial tree has taken place, the relatively rapid compression and expansion of the air entering and leaving the lungs cannot be delayed to the degree necessary to obtain equal pressures inside and outside of the chest and, therefore, to obtain complete arrest of chest movement. During the first week of residence in the equalizing alternating pressure chamber the patient generally learns to renounce all voluntary respiration and from then on resides in the chamber without conscious desire to breathe and with complete arrest of chest movement.

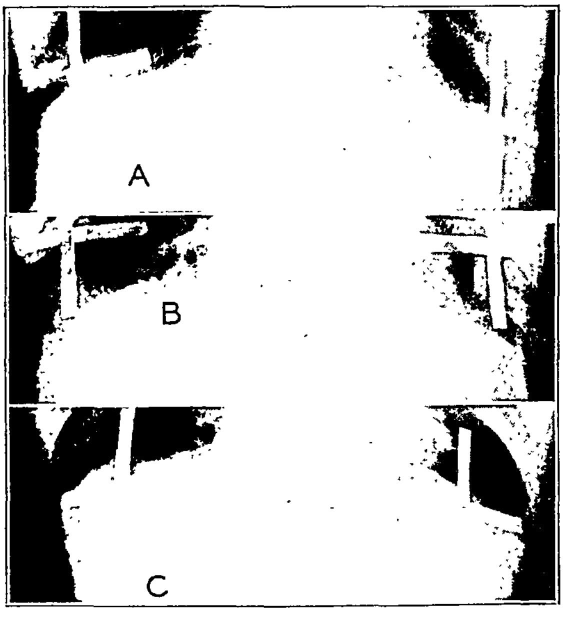

Fig. 1.—*A*, chest movement during quiet breathing revealed by blurring of margins of lead crosses. *B*, degree of chest movement shown by change of position of lead crosses on inspiration and expiration. *C*, absence of chest movement shown by sharp outline of lead crosses during continuous roentgen exposure for ten minutes.

In studies recently carried out, Eastlake and his co-workers[4] have demonstrated the absence of chest movement during residence in the chamber by means of roentgenographic pictures of lead crosses placed on the anterior surface of the thorax. A blurring, or two different positions of the lead crosses, are shown by continuous roentgen exposure on the same film during normal breathing and on two exposures on the same film during inspiration and expiration. However, as seen in figure 1, a ten minute continuous exposure

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Read *before the Section on Preventive and Industrial Medicine and* Public Health at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

[1] (*a*) Barach, A. L.: The Treatment of Advanced Pulmonary Tuberculosis by Continuous Arrest of Lung Movement Produced by Residence in an Equalizing Alternating Pressure Chamber, Tr. A. Am. Physicians **55**: 98, 1940; (*b*) Immobilization of Lungs Through Pressure, Am. Rev. Tuberc. **42**: 586, 1940.

[2] Barach, A. L.: Continuous Arrest of Lung Movement: The Treatment *of Pulmonary Tuberculosis in an Equalizing Alternating Pressure* Chamber, Am. Rev. Tuberc. **42**: 56, 1941; footnote 1a.

[3] (*a*) Barach, A. L.: Immobilization of Both Lungs: The Treatment of Pulmonary Tuberculosis in an Equalizing Pressure Chamber, Am. Rev. Tuberc. **52**: 122, 1945; (*b*) Physiologic Therapy in Respiratory Diseases, Philadelphia, J. B. Lippincott Company, 1948. (*c*) Cullen, J. H.; Myers, R. K.; Herben, G. F., and Barach, A. L.: Closure of Cavities in Pulmonary Tuberculosis Produced by Immobilization of Both Lungs, J. Chest Dis. **14**: 345, 1948. (*d*) Bellis, G. L.: Use of the Equalizing Pressure Chamber, read at the Joint Session of the Sanatorium Superintendent's Association and Sanatorium Trustees' Association, Sept. 13, 1947. (*e*) Eastlake, C., Jr., and Gary, J. A.: To be published. (*f*) Eastlake, C., Jr., and Barach, A. L.: Closure of Tuberculous Pulmonary Cavities as Accomplished by Residence in the Equalizing Pressure Chamber, to be published. (*g*) Barach, A. L.: Continuous Immobilization of the Lungs by Residence in the Equalizing Pressure Chamber in the Treatment of Pulmonary Tuberculosis, Dis. of Chest **12**: 3, 1946; (*h*) Immobilization of Both Lungs Produced by the Equalizing Pressure Chamber with Results of Treatment in Pulmonary Tuberculosis, Ann. Int. Med. **26**: 687, 1947.

[4] Eastlake and Gary.[3e] Barach, A. L., and Eastlake, C., Jr.: Closure of Tuberculous Pulmonary Cavities as Accomplished by Residence in the Immobilizing Lung Chamber, Tr. A. Am. Physicians, to be published.

on a film during residence in the equalizing pressure chamber revealed no blurring of the margins of the lead cross, indicating absence of discernible chest movement.

During residence in the equalizing pressure chamber the patient manifests a form of continuous body rest as well as lung rest, which is impossible of achievement by patients with voluntary respiration at bed rest. The degree of physical and mental relaxation obtained is generally striking. There is also highly suggestive evidence of a decided decrease in the diffusion functions of the lungs, because of the absence of respiratory effort and the diminution in over-all metabolism and oxygen consumption. The pulse rate is diminished 10 to 20 beats per minute, the systolic blood pressure is lowered 10 to 15 mm. of mercury and the temperature in afebrile patients often 1 degree (F.) less during respiration without lung movement. The other side effects of the treatment include an alternating pressure on the ear drum and sinuses, neither of which interferes with the treatment, as these sensations are not found to be disagreeable or uncomfortable after two or three days of residence in the chamber. The morale and cooperation of the patients are generally excellent. After the training period of a week or ten days, no attendant, nurse or technician is necessary, as the patient himself is able to regulate the therapy, opening the chamber and turning off the motor when he comes out for meals.

The summary of the follow-up in the first series of 11 patients with advanced bilateral pulmonary tuberculosis included 6 that obtained clinical arrest of their disease. Two of these patients were lost sight of one year after their discharge. In 1 patient during eleven years of observation, three periods of bed rest for three to four months each were employed for activity in the upper lobe of the right lung. Most of the time, however, during these ten years the patient had been at work. In another case of previously far advanced bilateral disease, the patient was well and at work with consistently normal sputum for four years, when a fall from a stepladder resulted in reactivation of tuberculosis. In 2 other cases of bilateral advanced cavitary tuberculosis, arrest of the disease has continued with the patients at work the greater part of five years in 1 patient and six years in the other, with consistently negative reactions to sputum smears and culture.

In 1 case in which recurrence of cavity took place after lung rest treatment, while the patient was at bed rest in a municipal hospital, a subsequent course of chamber treatment was followed by closure and healing of a large cavity in the upper lobe of the left lung. The reactions to sputum and gastric tests had been invariably negative during the six years prior to reporting. In another case, three courses of therapy were required to effect final closure of cavities in the upper lobes of both lungs. In these 2 patients inhalation of promin® (sodium P,P'-diaminodiphenylsulfane-N,N'-didextrose sulfonate) aerosol were given just prior to cavity closure, during the fourth and last month of treatment. Whether or not promin® had a favorable influence in effecting a more permanent type of cavity healing cannot be determined, but chemotherapy during the final period of shrinkage of the cavity by lung rest therapy deserves study. The response in these patients, and others, clearly demonstrated the specific factor of lung rest in effecting cavity closure, as contrasted to the ineffectiveness of continued bed rest in this type of case.

In a recent series of cavitary pulmonary tuberculosis, in 9 of 11 patients closure of cavity developed, with negative sputum, after a single course of four to five months. The clinical histories of 7 of these patients have been reported by Cullen, Myers, Herben and Barach.[3c] Six patients in the group had been previously treated with pneumothorax, 4 without effective collapse. In 2 cases the cavities had been collapsed by bilateral pneumothorax for five and six years, but reappeared after termination of pneumothorax. Although these cavities had persisted with previous bed rest, closure took place in four months of chamber therapy.

Since it has been demonstrated that tuberculous pulmonary cavities persisting or reappearing after long-continued pneumothorax and bed rest have closed, with the development of negative sputum, the use of the physiologically sound principle of rest to the lungs and the respiratory tract would appear to be amply justified as an additional therapeutic procedure in the treatment of cavitary pulmonary tuberculosis. In 2 patients of the first series tuberculosis of the larynx healed during the first two months' residence in the chamber; chemotherapy was not employed.

Although a new therapy is naturally first tried in cases of advanced disease, it should not be restricted to patients with advanced disease after it has been proved to have no harmful effects and to be therapeutically effective in the majority of patients treated. The use of the lung rest chamber in early cases of exudative and cavitary tuberculosis may also be considered justifiable, especially since it has none of the hazards of collapse therapy and surgical procedures.

Healing in tuberculosis, however, cannot be considered simply a matter of lung rest, since many other factors may continue to make this single agent of little clinical value. In 1 of the cases of far advanced disease, a progressive widespread extension of disease had previously taken place with bed rest, with a rectal temperature at the start of hospitalization of 99 to 100 F. and three months later of 104.5 F. The patient was highly toxic and at the start of treatment was carried into the chamber. Although no cure of the disease was anticipated, the effect of lung rest was a fall in temperature to 101 F. after the first week and decided shrinkage of cavity with clearing of some of the lesions in two months. Immunologic resistance to the tubercle bacillus was lacking, but combined chemotherapy and lung rest therapy may in some cases effect an arrest of disease when neither method alone is adequate. Of the entire group, there were only 2 patients who failed to show some improvement, during a period when defects in the apparatus as well as in clinical and experimental judgment were not infrequent.

The closure of cavity may be seen in two illustrative tomograms, the first case (fig. 2) representing the effect of the second course of lung rest therapy in a patient who had a six year follow-up with negative reactions to gastric and sputum tests and the second case (figs. 3 and 4) the initial closure of a cavity in the midst of an area of fibrosis, in a patient who had had tuberculosis for fifteen years.

The cause of cavity closure is complex and probably variable. Cessation of recurrent inspiratory enlargement of the cavity, which may take place in many cavities during normal breathing, would appear to be a probable advantage of arrest of lung motion. A check valve mechanism undoubtedly operates to maintain cavity in patients with a small bronchial lumen. Elimination of the check valve would appear to be a consequence of maintenance of a constant lung volume.

The answers to a number of questions concerning the use of the immobilizing lung chamber require extensive investigation. These include:

1. What is the optimal number of hours per day in which respiration with constant lung volume, i. e., without chest or diaphragmatic movements, should be maintained? Since ten hours per day accomplishes cavity closure and five hours per day appeared too little, should twelve to eighteen hours be tried?

2. Should chemotherapy be given when cavity closure is imminent?

3. Is closure of cavity by bilateral lung rest in the chamber preferable to (*a*) pneumothorax, (*b*) thoracoplasty and (*c*) routine bed rest?

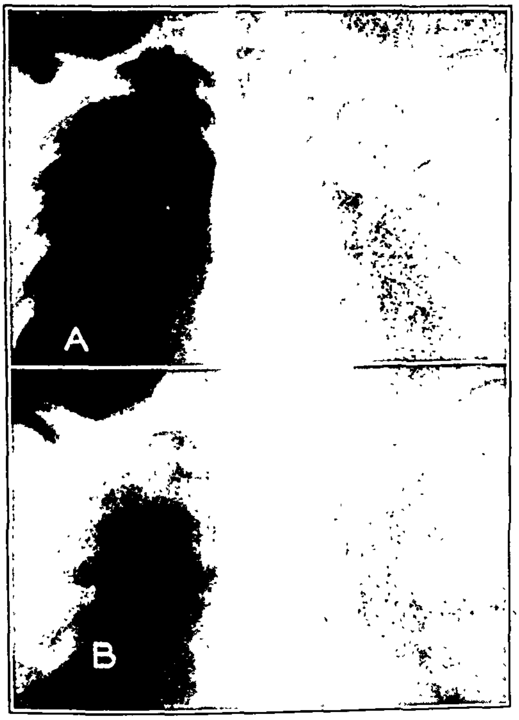

Fig. 2.—Tomograms showing closure of large cavity in upper lobe of left lung after four months of immobilizing lung treatment. *A*, before second treatment. *B*, after second treatment.

4. Are there any disadvantages to trial of total lung rest therapy in chronic pulmonary tuberculosis, and if so what are they?

5. How much bed rest should follow demonstrated closure of cavity after residence in the immobilizing lung chamber?

6. Is relatively slow cycling of the apparatus 16 to 18 times per minute preferable to 20 to 26 times per minute?

7. Should the chamber be used to stabilize doubtful lesions in cases of projected thoracoplasty?

8. Should the chamber be used after thoracoplasty to stop severe paradoxic chest respiration?

COMMENT

The objectives of this paper have been: (1) to present eleven years' experience with a physiologically based therapeutic method of treating chronic pulmonary tuberculosis, a procedure that maintains normal respiration without chest or diaphragmatic motion, with complete surrender of all voluntary breathing, with consequent provision of continuous immobility of both lungs and, finally, a state of lung and body rest during residence in the equalizing pressure chamber not possible of achievement by any other form of tuberculosis therapy; (2) to describe clinical evidence which supports the belief that this procedure exercises a specific effect in accomplishing closure of pulmonary tuberculous cavities, and (3) to suggest that lung rest, i. e., pulmonary ventilation with constant lung volume, be considered not as a measure of last resort in far advanced bilateral advanced pulmonary tuberculosis but as an alternative procedure worthy of trial in cases of less advanced exudative or cavitary tuberculosis instead of pneumothorax, thoracoplasty or bed rest.

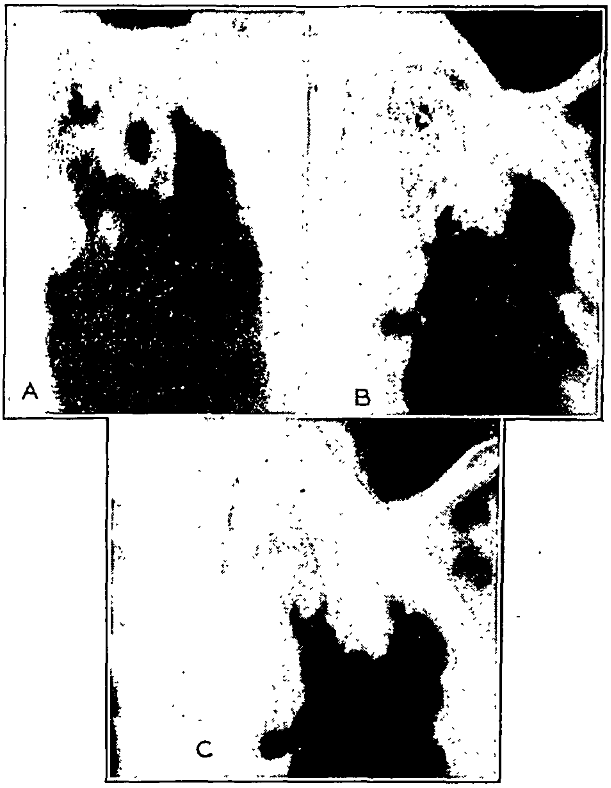

Fig. 3.—Tomograms showing progress in closure of cavity in the upper lobe of the left lung. *A*, before treatment. *B*, after five weeks of treatment. *C*, after fourteen weeks of treatment.

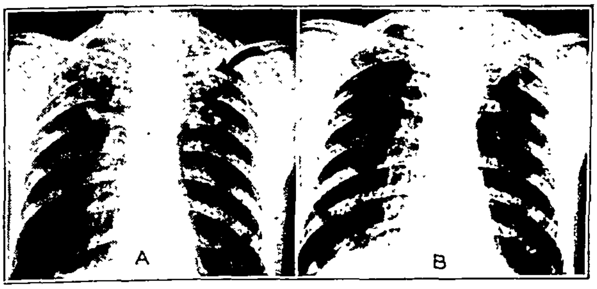

Fig. 4.—*A*, roentgenogram showing cavity in an area of long-standing fibrosis and calcification. *B*, closure of cavity after fourteen weeks of treatment.

In prior publications [5] it was shown that cavities that closed during residence in the immobilizing pressure chamber reappeared in some instances with bed rest and were finally closed during a succeeding course of lung rest therapy in the chamber. The effect of absence of chest motion on cavity closure was shown to be a specific factor and not simply an extension of the period of bed rest. In two previous series of cases of advanced tuberculosis treated at Presbyterian Hospital by residence in an oxygen room with 50 per cent oxygen[6] and in a filtered air room,[7] clinical recovery was not obtained in a single instance, although most of the patients were quite comparable to the patients with advanced disease treated by lung rest therapy in this series.

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[5] Barach.[3ab]

We are aware that a new departure in the management of chronic pulmonary tuberculosis requires extensive investigation. With the opportunities that have been made available during the past eleven years, two small series of cases have been carefully studied. Pneumothorax had either been impossible of induction or ineffective in obtaining cavity closure, or cavities had appeared after termination of pneumothorax. In some of the recent cases thoracoplasty might have been ultimately employed; in the majority the bilateral nature of the disease made surgical treatment impossible. The clinical recovery that took place in 15 of the 22 cases appeared to be a specific result of lung rest when other measures had been previously shown to be ineffective. Temporary improvement took place in all but 2 of the remaining 7 cases, even in a patient with an evening temperature of 104 F. in whom extensive disease had progressively involved both lungs during bed rest. No evidence of harmful effect was detected.

From the point of view of public health, early detection of pulmonary tuberculosis as well as the use of all available remedies effective in obtaining arrest of the disease seems indicated. Since residence in the immobilizing lung chamber has been shown to result in cavity closure and negative sputum in cases of disease resistant to other methods, this method of treatment merits investigation and trial, from the point of view of preventive medicine as well as the patient himself.

SUMMARY

The effect of the immobilizing lung chamber on closure of pulmonary tuberculous cavities is described. The follow-up results in 6 patients with arrested disease out of 11 treated with bilateral advanced pulmonary tuberculosis are summarized, together with the early results of a recent series in which 9 of 11 patients with tuberculous pulmonary cavity manifested an initial arrest of their disease, with closure of cavity and negative sputum after four to five months' treatment.[8]

The use of lung ventilation without lung movement, i. e., bilateral lung rest, is presented as an alternative procedure that appears worthy of trial in exudative and cavitary tuberculosis instead of bed rest, pneumothorax or thoracoplasty. The use of the immobilizing lung chamber is a feasible and practical method of treatment for patients with chronic pulmonary tuberculosis which has none of the hazards or disadvantages of collapse therapy. The entire operation of the chamber may be conducted by the patient himself without nurse or attendant after the training period of a week or ten days has taken place.

From the point of view of public health, a procedure that results in closure of cavity and negative sputum, when other measures have been admittedly ineffective, would appear to deserve serious consideration and trial in order to have the range of its usefulness determined. A number of questions concerning the use of the chamber, such as the optimal number of hours per day and the over-all length of treatment, the possibility of the joint use of chemotherapy as well as numerous other considerations, merit extensive further investigation.

ABSTRACT OF DISCUSSION

Dr. G. L. Bellis, Winnebago, Wis.: At Sunny View Sanatorium, a public institution for the treatment of tuberculosis, we have been privileged for the past fifteen months to test the therapeutic value of Dr. Barach's lung immobilization chamber. The cases selected for "total lung rest" treatment were of the far advanced bilateral cavitated type, with definitely unfavorable prognosis. With but one chamber at the beginning, it was deemed expedient to divide the twenty-four hour day into periods of four hours, prescribing for each patient either one or two periods, depending on the exigency of the case. An additional chamber, installed four months later, doubled our facilities. Fourteen patients have either completed or are now undergoing lung immobilizing treatment, permitting the following preliminary report to be made: The disease in 3 of the earlier cases, after 1,200 to 1,500 hours of lung immobilization have been given, is now classified as apparently arrested, with the patients taking half-hour walking exercise each day and about ready for discharge from the sanatorium; 3 other patients show persistently normal sputum on microscopic examination and give every promise of recovering; 1 of the group reported on gained sufficient strength in the chamber to undergo a successful pneumonectomy, and another is now awaiting transfer to the general hospital for a lobectomy in order to have a residual tension cavity eliminated. Four of the remaining 6 patients are continuing treatment and show decided symptomatic relief, but too short a time has elapsed to evaluate results, while in 2 patients in the preterminal stage treatment has failed to change the course of the disease. In none of the cases referred to was it necessary to exclude other indicated therapeutic measures. It is perhaps too early and the number of patients treated too few to arrive at definite conclusions. However, based on our observations, I feel that the benefits to be confidently expected from strict bed rest in the treatment of pulmonary tuberculosis are multiplied by use of the lung immobilization chamber. Symptoms of toxemia are promptly brought under control; patients with hemorrhage cease their periodic spills; pleuritic pain is dramatically relieved, and there is, soon after the start of treatment, roentgen evidence of a tendency toward cavity closure—surely a decided advance in results to be obtained in applying the principle of curative rest. Any treatment that will definitely cut down the length of time necessary to secure an arrest of the disease will be a welcome blessing to patients and worthy of the highest praise. Dr. Barach's chamber, in my opinion, possesses that potentiality.

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[6] Barach, A. L., and Richards, D. W., Jr.: Oxygen Therapy in *Pulmonary Tuberculosis*, Am. Rev. Tuberc. **26**: 241, 1932.

[7] Barach, A. L.: The Use of Filtered-Air Chambers in Pulmonary Tuberculosis, Am. Rev. Tuberc. **27**: 508, 1933.

[8] We wish to emphasize that our use of the term cavity closure does not merely indicate that cavities have been roentgenographically lost to view but that actual closure has taken place as confirmed by bacteriologic findings, by absence of tubercle bacilli in the sputum, and by clinical evidence, ability to work without symptoms. This opinion would appear to be justified in 5 patients who for four years or more after treatment revealed no roentgenologic, bacteriologic or clinical manifestations of cavity, as well as in others observed for two or three years. The disappearance of roentgenographic signs of cavity took place during chamber treatment and not after treatment. The specific effect of lung rest was revealed in some cases by reappearance of cavity on bed rest after chamber treatment and a second disappearance and closure of cavity during a subsequent course of lung rest. When closure of cavity has been manifested for two to four years, collapse therapy is not necessarily indicated on the grounds of greater security, since thoracoplasty itself is not without certain hazards. The expense of the treatment is moderate when chamber cost is calculated on a rental basis, since many patients use a chamber over a period of many years. The electric current expense is nominal and no attendant or nurse is necessary.

PRURITUS ANI et VULVAE

Report of 520 Consecutive Patients with Eczema of the Anal and Vulval Regions

HOWARD HAILEY, M.D.
Atlanta, Ga.

In this report, of a large number of patients, I propose to add further strength to support the apparent fact that pruritus ani et vulvae is a subjective symptom of eczema and not an entity. In two previous published papers on this subject I attempted to emphasize the importance of heredity as a causative factor and the presence of eczema elsewhere, before, during or after an attack of pruritus ani et vulvae as supporting evidence in the diagnosis of eczema of the anal and vulval regions.

It would be foolhardy were I to attempt to influence physicians to discontinue the use of the phrase "pruritus ani et vulvae." This phrase is like the poor, in that it has always been with us and most likely will continue. However, one should not make an entity of a symptom.

Fleeting, occasional itching of any region of the body when unaccompanied with visible cutaneous lesions is not true eczema. Patients who make this complaint are not considered in this report.

The cause of eczema of the vulval, anal and scrotal regions depends on two factors. The first is an indirect cause and is the result of an inherited hypersensitiveness or allergy. The second factor is the direct cause or excitant.

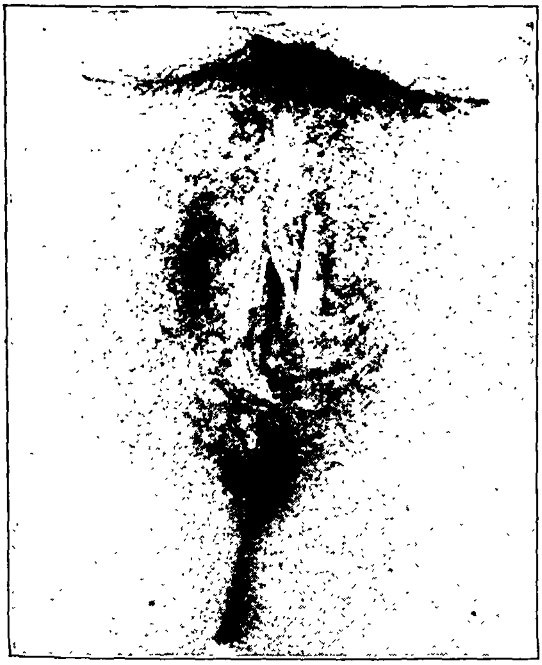

Fig. 1.—Eczema of the vulva, as shown by corrugated infiltrated appearance of the labia.

The indirect cause in the patient may have followed one of the common manifestations of hypersensitiveness other than eczema in one or more close blood relations in either or both parents or their immediate ancestors and side relations. The more commonly associated manifestations of hypersensitiveness are asthma, hay fever, urticaria, migraine, arthritis, sinusitis, pyelitis, cystitis and colitis.

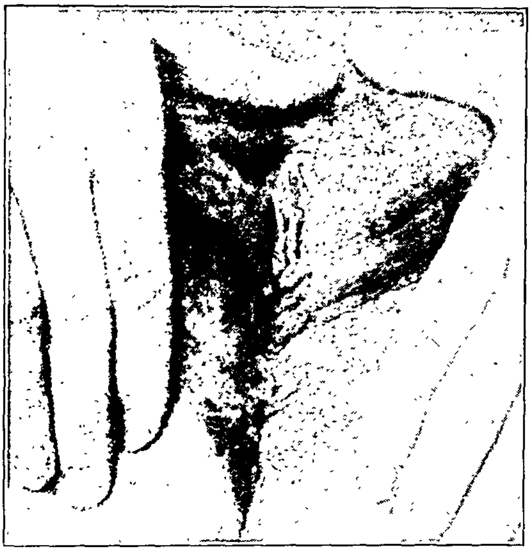

Fig. 2.—Eczema of the vulva and anal region, showing the sodden infiltrated patch on left labia and to the left of the anus.

The direct or excitant cause of an attack may be (1) chemicals (drugs, cosmetics), (2) clothing, (3) hemorrhoids, (4) diet, (5) heat, perspiration and friction, (6) atmospheric conditions or (7) emotions.

Fungous infections have no place in this discussion. An experienced physician will not be confused regarding fungous causation.

Eczema of the vulval and anal regions may attack at any age. The average age of the patients in this series was 43.52 years. The youngest patient was 4 years old. She had severe eczema; also she had eczema elsewhere on the body. Her mother had hay fever, and her maternal grandfather and grandmother had eczema. The oldest patient was 86 years old.

In this series of 520 patients whom I have observed and treated during the eleven year period prior to reporting, there was only 1 Negro (mulatto). She was 64 years old and well past menopause; she did not come from the Atlanta area.

The incidence of "pruritus ani et vulvae" in decades is as follows: Up to 10 years of age there were 2 patients; 10 to 20 years, 9 patients; 20 to 30 years, 69 patients; 30 to 40 years, 145 patients; 40 to 50 years, 116 patients; 50 to 60 years, 110 patients; 60 to 70 years, 50 patients; 70 to 80 years, 17 patients, and 80 to 90 years, 2 patients.

Thirty and three-tenths per cent of the patients had the disease for six months or less, 13.85 per cent six to twelve months, 30.75 per cent one to five years and 25.10 per cent five years or longer.

There have been three instances of mother and daughter with pruritus ani et vulvae being treated at the same time. A number of patients stated in their histories that a sister or mother and sister suffered from the same complaint.

Read before the Section on Dermatology and Syphilology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

Formerly Associate Clinical Professor of Dermatology, Emory University School of Medicine; Dermatologist, Georgia Baptist Hospital, Crawford W. Long Hospital, Emory University Hospital and Egleston Memorial Hospital for Children; Consulting Dermatologist, Oliver General Hospital, Augusta, Ga.

Several instances occurred in which husband or wife stated that the spouse had the same trouble. Of course, each thought that he or she had contracted the trouble from the other. In this series 342 patients were female and 178 male.

There was a history of one or more manifestations of hypersensitiveness (allergy) in the family in 65.63 per cent of the cases. Here again, this is a high percentage when one considers that many patients did not know their grandparents or even one or both of their parents. So often parents had died before the patient was old enough to make reliable observations. Then too, often the patient was an adopted child—hence the absence of a history of eczema or related manifestations of hypersensitiveness.

In the series, 84.94 per cent of the patients had eczema elsewhere on the body when they presented themselves, or they had had eczema before the attack of "pruritus ani et vulvae."

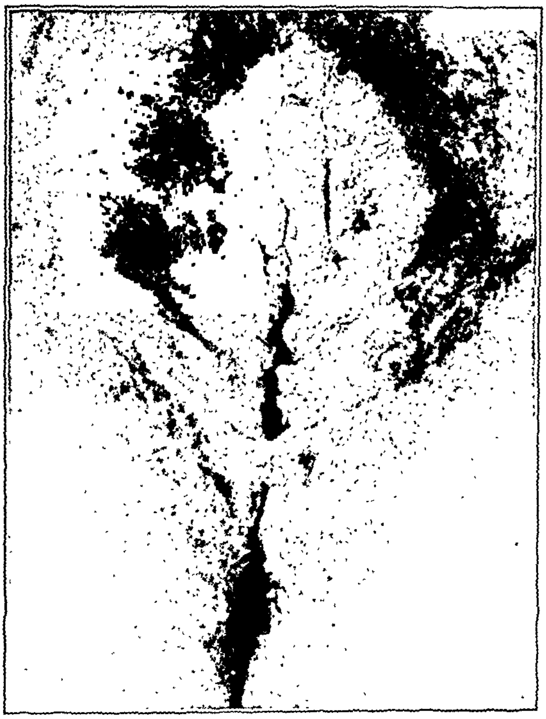

Fig. 3.—Chronic infiltrated eczema with multiple abrasions. The prognosis as to permanent cure is very poor.

Three patients had "pruritus scroti" as well as "pruritus ani."

Eczema of the anatomic parts under discussion have the usual signs and symptoms as eczema elsewhere. The signs and symptoms vary as to whether the attack is acute or a recurring chronic one. Complications in eczema of the regions under discussion are those found with eczema elsewhere. Heat and moisture enter into the initiation of the attack and also delay healing.

The commoner complications are abrasions, fissures, secondary infection and abscesses. Keratoses and occasional epitheliomas follow overirradiation or may appear in the absence of a history of irradiation. Frequently leukoplakia is present. Kraurosis is a name for the end result of long-standing chronic eczema of the vulva and might also well refer to the anal region so affected. When the stage of kraurosis has been reached, the skin has become fibrotic and the skin appendages have disappeared through atrophy.

Insomnia, nervousness and loss of weight are followed by physical exhaustion and mental depression which sometimes becomes serious.

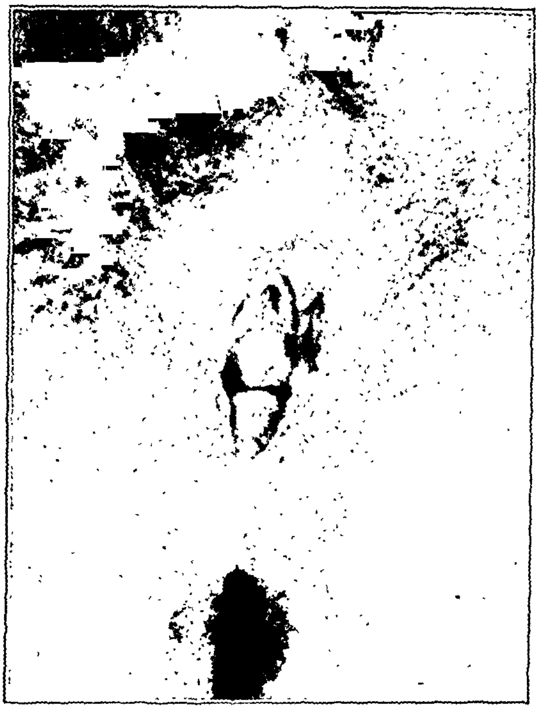

Fig. 4.—Vulvectomy performed on the patient seen in figure 3. This radical procedure failed to effect a cure.

TREATMENT

Surgical treatment is not indicated, but, in fact, is contraindicated in the management of eczema of the anal and vulval regions, except in a limited number of patients who are suffering from concomitant symptoms producing hemorrhoids. Cutaneous tests for allergy have no legitimate place in the diagnosis and treatment of eczema, and the practice will probably be discontinued in the near future.

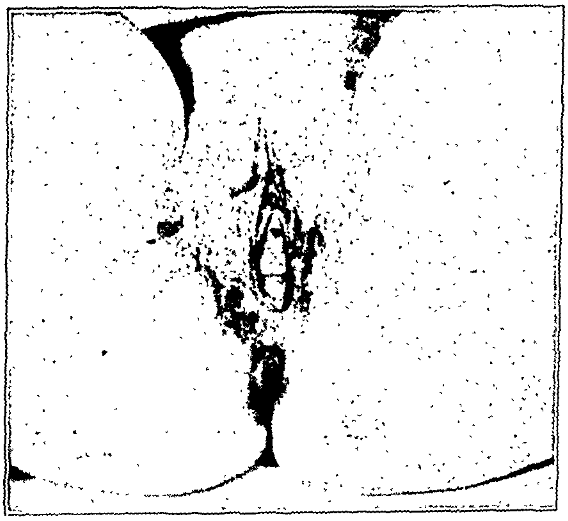

Fig. 5.—This illustrates overirradiation. Atrophy, loss of hair, telangiectases, keratoses and epithelioma followed.

Periods of rest and even complete rest in bed are necessary to give relief to some patients. Frequently sedation is indicated. A change of environment is desirable when the patient is at odds with one or more other members of the family. Cold damp compresses are indicated in the acute stage of eczema. Ointments usually aggravate instead of alleviate the condition. Advice as to the clothing and withdrawal of cosmetics —powder, perfume and especially nail polish—are among the important details in the successful management of eczema of the anal and vulval regions.

Saline douches are of great value. A cold quartz lamp is valuable in treatment. Roentgen therapy continues to be the best single treatment in the quick relief and cure in the majority of patients with this condition. The physician who administers roentgen rays should be well trained. The physician who gives roentgen treatment in a careless way must expect trouble sooner or later. No roentgen rays should be administered to a patient who has previously had treatment until a record of the treatment has been obtained. Roentgen rays properly given are of no danger to the sex organs. However, some physicians will continue to use a tampon and deny the patient the benefits of roentgen treatment. Ill advice to the effect that roentgen rays will damage her organs, cause sterilization and prevent pregnancy temporarily pacifies the patient until the nervous tension drives her to seek help elsewhere.

SUMMARY AND CONCLUSION

A study of 520 patients under treatment for pruritus ani et vulvae during the eleven year period prior to reporting convinced me that all of them had or have eczema. The cause of eczema is twofold, namely, an indirect cause provided by heredity and a direct cause provided by some excitant from without or within the body. The presence of bacteria, yeasts, fungi and amebae in the vagina and at the anal skin juncture are practically always saprophytic and not pathogenic as related to eczema. So-called cutaneous tests for allergy have no place in the management of eczema.

Atlanta, Ga., has a Negro population of approximately 120,000, but I have not seen a single Negro patient from the area with eczema of the anal and vulval regions.

Approximately 66 per cent of this series were female and 34 per cent were male. There were 65.63 per cent who gave a history of one or more manifestations of hypersensitiveness (allergy) in the family and 84.94 per cent who had eczema elsewhere on the body on their first visit or had had eczema elsewhere prior to the attack of "pruritus ani et vulvae."

A study of the incidence of the disease indicates that the menopausal period is not a dominating factor. The decade incidence does indicate that eczema of the anal and vulval regions is commonest during the active working period of the patient's life. Recurrences and relapses are common, but if the patient cooperates and strict attention is paid to the details of treatment, relief and clinical cures for periods of years may be expected in the vast majority of patients suffering from "pruritus ani et vulvae" or eczema of the anal and vulval regions.

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ABSTRACT OF DISCUSSION

Dr. G. A. Grant Peterkin, Edinburgh, Scotland: I will mention first the points with which I disagree. I cannot subscribe, for instance, to the view that pruritus ani et vulvae is merely a form of eczema, although eczematous changes are frequently present. The name pruritus means merely itching, and itching of the anal and vulvar regions may be produced by a vast variety of causes. In 107 cases in 1946 referred to me as cases of pruritus ani et vulvae there were such different conditions as psoriasis, condylomata acuminata, condylomata lata, carcinoma cutis, lichen planus, amoebiasis, prurigo nodularis and tuberculous sinuses. Also, there are persons suffering from severe pruritus ani et vulvae in whom no cutaneous changes are apparent but in whom this intense itching has been present over a prolonged period. Certainly the skin of most patients shows an eczematous reaction, but this reaction may be due to many different causes, such as atopic dermatitis, infectious eczematoid dermatitis, flexural seborrheic dermatitis and fungous infections, either tinea or infection due to Candida albicans, which may be easy enough to diagnose but which may, on the other hand, offer great difficulties in diagnosis. I consider the role of the gynecologist most important and frequently obtain the benefit of his advice, as cervicitis and trichomonal infection may be present and the yeast organisms may also attack the vagina. Dr. Hailey mentioned that approximately 66 per cent of his series were women and 34 per cent men. In my small series of 107 cases, 67.3 per cent were women and 32.7 per cent men—a similar figure. Like Dr. Hailey, I was somewhat surprised to find that in my cases the age group with the highest incidence was that between 30 and 40 years of age, as one somehow tends to believe that pruritus ani et vulvae is most frequently seen in persons past middle age. However, it is possible that many women over 40 seek advice from the gynecologist rather than the dermatologist. Finally, I make a plea even more compelling than Dr. Hailey's against the indiscriminate use of roentgen rays in this condition. All dermatologists know how effective this therapy is in the average case, but one should first make every effort to discover the exact cause of the itching, e. g., contact eczema due to medicated toilet paper and purgatives, before commencing it. One should bear in mind the lot of persons suffering from both the pruritus and radiodermatitis. Starch poultices will usually tide the patient over a crisis better than roentgen rays, while for patients with the unfortunate combination of radiodermatitis and pruritus, I do not know a better treatment agent than thorium X.

Dr. James Herbert Mitchell, Chicago: I find it impossible to generalize about pruritus ani et vulvae. First of all, one must make all kinds of investigation in order to determine what the causative agent is. Failing to find anything, one has only an itching that is an irritation of the nerve endings of the region. During the war, I had a tremendous increase in cases involving war mothers and war brides. It is the number one problem in the private practice of dermatology. All sorts of things must be looked for, and I do not agree with Dr. Hailey, in the least, about the patch test. Also, Dr. Peterkin has called attention to the fact that it is very necessary to make cultures and to exhaust the possibilities of investigation. A number of years ago, I published an article in The Journal on the production of pruritus and dermatitis ani by anusol® (a mixture of bismuth oxyiodide and resorcinol sulfonate in a fatty base) suppositories. There is a strong reaction in persons who are sensitized to resorcinol. A case that occurred in my practice some years ago was that of a woman of 35, previously divorced, who had been married for three months and had been having a good deal of trouble in the vulval region. The region was stained with Gibson's picrate ointment. She had been in the hands of a very competent colleague and had been given patch tests to all the medicaments, the reactions to which were negative. Eventually I found that her husband, a veterinarian, had been using an ointment on his hands each night for three months. Patch testing with this ointment gave a violent reaction.

Dr. Stephen Rothman, Chicago: What has been said about hereditary influences seems important in the interpretation of pruritus ani et vulvae. It appears that it is a particular genetically induced state which makes a person an "atopic" or a "neurodermatitis" type. There are certain attendant somatic and psychic stigmas. Among the somatic stigmas are the susceptibility to itch stimuli, the great tendency to lichenification in response to scratching and multiple dermal sensitivities. I agree with Dr. Hailey that the sensitivities never have been proved to have any etiologic significance. A study of the material of the University of Chicago Clinics was published in *Gastroenterology* in September 1945. Fifty-five per cent of 70 patients with pruritus ani were atopic, whereas the remaining 45 per cent did not have lichenification, and the perpetuation of the itching-scratching circle had a different mechanism than in atopic persons. In both forms banal external irritation, such as the cleansing with toilet paper, caused the onset of itching spells and contributed greatly to the persistence of the condition. The most important point in the reform of the hygiene of the anus has been the avoidance of rubbing, the rubbing being defined, as I explain to my patients, as a "round trip movement of the hand." This could be best achieved by sitz baths and drying by patting. In addition to measures directed toward avoidance of external itch stimuli, one can successfully decrease the state of itching hyperexcitability by measures acting both on the central nervous system and on the periphery. The combined treatment method, as outlined in the paper previously mentioned, was successful in 93 per cent of the 50 patients on whom a follow-up could be made.

Dr. Adolph Rostenberg Jr., Chicago: I agree with the speakers that pruritus ani et vulvae is an important clinical problem. However, I feel, as does Dr. Peterkin, that one must make an assiduous search for the specific cause in a given case. It seems to me that one will not make much progress if one labels all these conditions, as Dr. Hailey apparently has done, eczemas. Eczema, to me, is a morphologic reaction pattern which can arise from a myriad of causes, and knowledge is not gained by one's calling the conditions eczemas. A word as to kraurosis. If I understood Dr. Hailey correctly, he said that some cases of kraurosis arise on the basis of an eczema. It is difficult for me to believe this, as kraurosis is an atrophic condition. There is considerable evidence that it is or stems from lichen sclerosus et atrophicus. It seems to me that the reason for the sex distribution, two-thirds female and one-third male, is obvious; after all, the title of the paper is "Pruritus Ani et Vulvae."

Dr. Howard Hailey, Atlanta, Ga.: I sent a copy of my paper prior to this meeting to Dr. Peterkin and to Dr. Mitchell, and, from their discussion, apparently they did not read the paper. The causes of itching of the vulva and perianal region were purposely not included in this paper. If anyone gained the impression that I was condemning patch testing as an aid in diagnosis, I am sorry. I am strongly in favor of patch testing. I know that Dr. Mitchell finds patch tests most valuable. I read a paper on eczema, eczema of the vulval and anal regions, 3 cases in the scrotal region, and I tried to emphasize that contact dermatitis, intertrigo (diabetes, etc.), fungous infections, pinworms and the like were not considered in this paper. It is hoped that only eczema and eczema with complications will be kept in mind so far as this presentation is concerned.

Hodgkin's Disease and Tuberculosis.—In spite of repeated attempts to connect Hodgkin's disease etiologically with some form of tuberculosis, all efforts have failed and there remain but two interesting correlations. One is the often chronic inflammatory granulomatous appearance of the lesions of Hodgkin's disease, and the second is the consistently high percentage of negative tuberculin reactions in patients having Hodgkin's disease. . . . A low incidence of positive reactions to tuberculin tests also may occur with other diseases of the reticuloendothelial system (such as leukemias and lymphosarcoma) which may be caused by that system being "blocked out," with resultant anergy. . . .—Warren L. Bostick, Hodgkin's Disease, *California Medicine*, February 1949.

Special Article

HAIR AND SCALP TREATMENTS AND PREPARATIONS

A Report from the Committee on Cosmetics

Note.—The Committee on Cosmetics was established by the American Medical Association to study cosmetics as they are sold to the American people. The Committee examines the claims made for various preparations and determines the safety or harmfulness of cosmetics. The information accumulated is made available from time to time in reports to the public and to the medical profession, depending on the nature of the report and the technical information that it contains. These informative articles will be made available through the Association's publications such as *Hygeia* and The Journal of the American Medical Association.

The Committee also has undertaken an evaluation program which will permit the use of a Committee seal for cosmetics that meet the rules of the Committee. This program is similar to others undertaken by the American Medical Association in relation to drugs, foods and devices.—Editor.

Even the Federal Food, Drug and Cosmetic Act cannot protect credulous persons against extravagant and deceptive claims for hair preparations. Clever advertising maneuvers circumvent the law and imply results which are impossible.

HAIR AND SCALP TREATMENTS

Every business area has one or more offices devoted to hair and scalp treatments by persons self designated as "hair experts," "hair and scalp specialists" or "trichologists." Their business is to convince the public by various approaches that their "proved," "exclusive" or "specialized" method can prevent or cure baldness.

The advertising of these hair and scalp establishments assumes a characteristic pattern. They deal with a condition which the public has associated with health and the medical profession; they assume a professional aura which, in turn, is used to justify their so-called professional fees. The public is invited to have a "consultation," a free "scalp examination" and a "diagnosis" by a "hair expert," "specialist" or "trichologist." In fact, one firm has simply and glibly solved the problem of the cause of baldness by stating that it is due to fourteen local causes. They offer to diagnose, in a brief scalp examination, which of the fourteen is responsible for the loss of hair.

To the average nonprofessional person, these high sounding terms have a medical tang and connote scientific background and training. These self-promoted authorities are not physicians and, so far as can be determined, have no qualifications other than a full head of hair, a business brain and an appetite for easy money.

Fees in amounts equivalent to that of a major surgical operation are paid by thousands of persons yearly for futile hair-saving or dandruff-curing treatments or remedies. "The Thomas'" claim that their forty-five offices manned by the "World's Leading Hair Experts" treat an average of 1,800 persons each day, or on this basis, 640,800 persons a year. At $6 to $10 a visit, this concern has a yearly income of approximately $3,844,800.

Typical of those persons contributing to the financial success of these firms is a patron who wrote that after thirty treatments for a promised dandruff cure at a

$200 fee, he was advised that failure was due to too few treatments. Another stated that he had enrolled for a course of forty to sixty treatments to stimulate hair growth, paying in advance, thereby taking advantage of a liberal cash discount. At the end of the sixtieth treatment he was told by the "trichologist" that he needed additional treatments to further the progress already made and that if added treatments were not taken some of the gains already made might be lost. A complaint to the central office brought the reply that like physicians they were unable to predict the number of treatments necessary or the reaction of the client's scalp. Therefore, after an expenditure of $450 for treatments and take-home products, the writer indicated that his hair and scalp were in little better condition.

The methods uniformly fall into familiar patterns; rarely do they show originality in the approach. The preparations which they promote have the usual hair "tonic" formulas, which consist essentially of either an antiseptic, an irritant or a keratolytic substance.

Massage.—The hair "tonics" are usually applied with massage, which is claimed to increase the circulation, thereby stimulating cell activity and, consequently, favorably influencing the growth of hair. There is no proof that the temporary increase in blood supply to the area massaged postpones the loss of hair or in any other way influences baldness. One firm suggests the massaging of only certain areas of the scalp, supposedly at those sites where the larger blood vessels enter the scalp. Another suggests massaging with the head lower than the waist. In addition to the fact that there is no scientific basis for these theories, over a period of years actual use has proved their worthlessness.

Other firms employ mechanical devices such as electric brushes, vibrators or a suction apparatus for the purpose of increasing circulation. The failures are the same as with manual massage.

In rare instances, continued massage may produce a fine colorless fuzzy down similar to that seen on the heads of some newborn babies. Alert firms are quick to capitalize on this fact by advising their patrons to observe the condition of their scalps under a bright light for the presence of this fuzz on the theory that this is the beginning of a real growth of hair. This fuzz cannot be considered either in length or appearance to be a real growth of hair or a precursor. Frequently, after reaching a length of about ½ inch (1.27 cm.) the fuzz drops off and is not replaced. In any event, its appearance is without cosmetic value, since it is invisible except on close well lighted inspection.

Ultraviolet Rays.—No matter how illogical or unscientific the basic principles, any new treatment which has public appeal and which has any degree of practicality will eventually be tried in the treatment of baldness. Therefore, ultraviolet lamps enjoy some popularity. In trained hands, ultraviolet rays have some usefulness, but only those whose scientific background makes them capable of understanding the limited available data and the potential health hazards should undertake the supervision of such treatments.

Mail Order Hair and Scalp Treatments.—Mail order businesses function by sending directions at regular intervals through the mails; the client carries out the treatment himself. Invariably, some solution or ointment is involved as well as massage of various forms. One under the name "Laboratories" offers to diagnose scalp conditions by microscopic examination of a few strands of hair sent through the mail. Although certain physical characteristics of the hair can be observed with a microscope, such as whether or not it is human, or dyed, or permanent waved, or contaminated with foreign matter, the physiologic condition of the scalp cannot be determined by such examinations.

HAIR "TONICS"

Drug and department stores enjoy gratifying sales of alleged hair "tonics," a term used here simply because the preparations to be discussed are on the market under this name. However, hair "tonics" is misleading since the term "tonic" has a definite meaning to the average person. The word is associated with something that is conducive to a healthy condition or to overcome a diseased condition. However, the so-called hair "tonics" simply groom the hair.

There are no magic or mysterious ingredients in these preparations. They usually consist of simple mixtures of well known drugs. Apparently, the majority of conventional products have similar basic formulas, although an attempt is often made to suggest that they contain a miracle-performing complex chemical. Among the common ingredients used are acetic acid, resorcinol compounds, salicylic acid, mercuric chloride, sulfur and betanaphthol. The chemical and pharmacologic properties of each of these drugs are well known. With these data in mind, resourceful manufacturers conjure a makeshift adjustment between the pharmacology of these ingredients and pseudoscientific facts about baldness and dandruff. The past history of each of these chemicals after repeated use in many hair preparations indicates that they are ineffective in growing or maintaining hair or in curing dandruff. Disappointment and futile expenditure of money will result from the use of hair "tonics" for these purposes, and the possibility that certain of the ingredients may cause a severe dermatitis is ever present.

Sulfonamide Drugs in Hair "Tonics".—As soon as a drug is generally accepted by the public as a cure-all, it will appear in a hair or scalp preparation. Therefore, the sulfonamide compounds are used rather widely for this purpose, in spite of the fact that intensive clinical and laboratory research records the worthlessness of these drugs in hair preparations.

Furthermore, serious dangers are involved in the indiscriminate use of these chemotherapeutic agents. A sensitivity may develop which will not only result in a dermatitis of varying degrees of severity, but also may preclude the future use of the drug should the person require it. In addition, small repeated applications of the sulfonamide compounds may enable organisms present at that time to develop a resistance to the drug, and any future infection caused by this resistant or drug-fast strain of organisms cannot be effectively treated with this particular drug. Chemotherapeutic agents should, in all instances, be used only under the supervision of a physician.

Hormones in Hair "Tonics".—For similar unsound reasons, hormones, which have also been widely accepted by the public as cure-alls, are found in some brands of hair "tonics." Evidence is lacking that hormones applied in any form to the scalp will influence the growth of hair in ordinary baldness.

True, there is some association between hormones and the normal amount and distribution of although its exact nature has not been definitely established. Under no circumstance should hormone therapy be used unless definite evidence of a hormone dysfunction prevails. Such dysfunction is not diagnosed solely on the basis that the person has lost or is losing his hair. Because the hazardous potentialities of hormones are still not completely determined and, in particular, the effects of frequent small amounts not definite, the topical use of hormones in cosmetics is to be condemned. Hormones are absorbed through the skin and, in large enough amounts, can cause systemic changes.

Vitamins in Hair "Tonics."—Vitamins do not influence ordinary baldness. A newspaper report recently stated that a foreign university had conducted studies on the injection of vitamin B into the scalp in cases of baldness, with some success. Scientific reports in this regard are lacking.

Charlatans invariably recognize the potentialities of newspaper statements of this type, regardless of source or authenticity, and make them the basis of a business venture. Injections of this nature into the scalp can have disastrous results.

In fact, the injection of any substance into the scalp is a highly questionable and risky procedure, since the amounts of subcutaneous fat and the thickness of the muscular layers are not conducive to absorption of a foreign substance. In addition, only substances of carefully controlled sterility and physical characteristics can, with any degree of safety, be injected.

Hair "Tonic" Advertising.—The advertising of hair "tonics" makes a concerted effort to create a "bald" conscious public. The tenor of advertising revolves about the cause, control and cure of baldness with such picturesque language as "growth-choking dandruff," "strangled hair follicles" and "dandruff is Nature's warning signal." In some instances, the advertising claims are so blatantly misleading and false that the Federal Trade Commission initiates action. In the interim, a period of time may elapse which will allow a considerable fortune to be amassed by the manufacturer, who can then nonchalantly view any government action which removes his products from the market. The disgruntled and defrauded public then views the entire cosmetics industry with suspicion and distrust.

The germ theory of dandruff is popular and is adroitly adjusted to the use of antiseptics in hair "tonics." For some time, people were rinsing their mouths with a hair "tonic," since listerine® offered the same formula for its mouth wash and its hair "tonic." The term "antiseptic" is a good selling word, because it connotes to the average reader a protection against germs in general. Until such time as an organism is proved to be the cause of so-called dandruff and until such time as a drug is found which kills or inhibits that specific organism, this type of advertising is supported only by supposition.

A second theory of considerable sales appeal suggests that itchy scalp leads to dandruff which in turn is a precursor of baldness. The physiology of itching indicates that both functional and organic causes must be considered. Functional pruritus, in which there are no visible changes on the scalp, is a fairly common affliction. When attention is concentrated on the scalp during periods of inactivity, fatigue or tenseness, minimal pruritus becomes noticeable. In addition, the repeated use of drying shampoos may lead to more apparent flaking of the skin and itching which is temporarily relieved by shampooing. In those instances in which there is definite scalp disease of which itching is a symptom (not a cause) diagnosis and treatment should be relegated to a physician.

A third popular theory proposes that the use of irritants or massage increases the blood supply to the part, thereby accelerating cell activity and, concomitantly, hair growth. There is no evidence that the temporary increase in the blood supply rendered by massage or by an irritant chemical will in any way influence the course of baldness. If there were any proved basis for this theory, the blood supply can be increased simply and safely by temporarily lowering the head below the waist. Unfortunately, the chemicals used as rubefacients can cause sensitization, and their indiscriminate use may increase rather than decrease so-called dandruff.

Testimonials.—The advertising of hair "tonics" and hair and scalp treatments abounds in testimonials accompanied by "before" and "after" pictures. These statements testifying to miraculous results obtained from the use of a certain hair preparation must be viewed critically. The processes of the human body are so complex that the average person is unable to distinguish between results which are due to natural causes and those due to artificial remedies.

Testimonials can be obtained in several ways. They can be bought outright; they can be faked; often they are genuine from the documentary standpoint and have been written in good faith. These letters are usually volunteered by well meaning persons who have absolutely no knowledge of the nature of the challenging problems of the loss of hair. Most courts of law are cognizant of the limitations of the lay public in medical matters and their testimony is not accepted as evidence.

Widely used are "before" and "after" pictures showing a person with varying degrees of baldness originally, and the same person with more hair following the use of certain brands of hair "tonics." In some instances, hair grows on a previously hairless head, but not as a result of any external application or treatment. For example, about three months after prolonged febrile illnesses, severe nervous shocks or traumatic injuries, scalp hair may fall out completely or a rapid general thinning of the hair may take place. At other times, the hair falls out in patches known as "alopecia areata," or the entire head and orbital areas are left without hair. These instances can be differentiated from ordinary baldness by the lack of characteristic patterning which occurs in the latter, first in an area above each eye and at the vertex of the head; both areas eventually merge, but hair will remain at the periphery so that, regardless of the extent of baldness, regular hair cuts are still necessary.

In symptomatic loss of hair, to resort to hair "tonics" and "professional" hair and scalp treatments is unnecessary. Regrowth usually takes place due to the forces of nature and not to any external application. The human mind is so constituted that one is much more prone to give credit to artificial measures than to nature and will, through misdirected gratitude, allow testimonials to be published.

Guarantees.—These hair "tonic" businesses have, over a period of years, been exceedingly liberal in the use of guarantees in their advertising. Although no one has been successful in growing hair on a bald head, despite the frequency of guarantees to that effect, these businesses have not gone bankrupt. Two possibilities serve as an answer: the guarantee, regardless of its apparent ironclad nature, is full of loopholes, and the dissatisfied purchaser rather than risk ridicule does not attempt to get his money back.

SIMPLE DANDRUFF

Dandruff is actually a manifestation of a normal physiologic process. Dead keratinized cells are constantly being shed over the entire skin surface. On the scalp, the process is more noticeable and objectionable, because the hair enmeshes the flakes along with accumulated oily secretions and extraneous debris. The varying degrees of dandruff among people may be due to obvious physical factors or to constitutional predisposition. The continuous use of synthetic detergent shampoos, excessive use of irritating hair lotions or "tonics," overeating of sugars and starches, improper hygiene and poor general health have been defined by some authorities as aggravating the shedding of dead cells.

Treatment of Simple Dandruff.—When the amount of dandruff is objectionable and without apparent specific cause, a few simple measures faithfully executed will be of considerable value in its control. Daily gentle massage of the scalp will detach loose dandruff flakes from the scalp and subsequent brushing, in addition, will remove the flakes from the hair shafts. Shampoos as often as every three or four days in soft water may be necessary. Synthetic detergents may be drying. Their use in the specific treatment of dandruff is discouraged. They have obvious advantages in hard water areas. Simple hygienic principles dictate that brushes, combs and hats should not be borrowed or lent.

If strict adherence to these measures does not produce satisfactory results, a dermatologist should be consulted. Remedies should be applied only under the supervision of a physician, since they may contain irritating or sensitizing substances.

SEBORRHEA OF THE SCALP

Seborrhea is a functional disturbance of the sebaceous glands characterized by the occurrence of an excessive discharge of sebum (oil) forming white or yellowish greasy scales on the body. This condition does not necessarily limit itself to the scalp, but may be found on the face, chest, back or entire body. The cause of this disease, which has been the subject of controversy throughout medical circles for years, remains unknown. These few facts will illustrate that seborrhea is a medical problem and like other skin diseases should be diagnosed and treated only by physicians.

The relationship, if any, between seborrhea and loss of hair continues to be a subject of controversy among dermatologists who have studied the problem for years. There is still no proof that seborrhea influences loss of hair, regardless of the fact that it is present on a majority of scalps which are losing hair. As evidence against the likelihood of its role as the cause of baldness is the fact that seborrhea invariably affects the entire scalp, and yet hair is always lost in the characteristic patterns of ordinary baldness. In addition, regardless of the extensive nature of the disease, hair is lost only from the scalp, never from the chest or other hairy areas. Women who have a severe persistent seborrhea do not lose their hair. Nevertheless, seborrhea has become a by-word in hair "tonic" and hair and scalp treatment advertising.

All treatment is temporary; the disease is chronic with periods of quiescence and exacerbation. Although frequent shampoos may control the condition in some instances, more drastic treatment with medication may be required for effective results. In any event, seborrhea is a skin disease and, as such, should be treated by a physician. The use of dandruff removers and similar preparations should be discouraged, for they often contain ingredients which are capable of causing severe skin reactions and may, in some instances, aggravate the existing symptoms.

CAUSES OF BALDNESS

The most common and disturbing form of hair loss is "premature baldness," medically referred to as premature idiopathic alopecia. Although the oldest prescription on record is for the loss of hair and earliest recorded history indicates the problems of this condition, little more is known today about the actual cause, control or cure than was known then.

Premature baldness occurs almost exclusively in men during their second and third decades without any known recognizable disease. The loss of hair occurs in a characteristic pattern; first, over each eye with concomitant or subsequent loss of hair at the vertex, with the encroachment increasing until the top of the head is without hair.

The tendency toward premature baldness is hereditary. Although the endocrine glands are known to be an influential factor in normal growth, their relationship, if any, to the loss of hair in young men remains a mystery.

Evidence of the possible influence of inheritance and endocrine factors is the fact that eunochoid and male castrates do not develop ordinary baldness. One investigator succeeded in inducing typical early baldness of the male type in such persons by administering androgenic (male) hormones. Further enlargement of the bald areas was prevented by the discontinuation of the treatment; however, this discontinuation did not promote regrowth of lost hair. In addition, the androgenic hormones were without effect on those men whose families did not have a history of baldness. In all probability, frequent washing of hair, tight hats, continual use of electric lights, hot showers, sedentary city life and similar popularized theories are without significance.

Among the changes associated with advancing years is a loss of hair referred to as "senile" alopecia. Thinning of the hair of both men and women accompanies aging; however, such thinning is more frequent in men. The problem of senile alopecia from the medical point of view is the same as that of premature alopecia, but the psychologic implications of the loss of hair in the young adult are more acute and serious.

TREATMENT OF IMPENDING BALDNESS

To create a demand for hair-raising products, the male population is bombarded with advertising which aims at making them "bald" conscious. Some, without reason, become panicky and seek medical aid or resort to hair "specialists" and hair "tonics." Unless obvious, the first consideration is whether or not the man is actually losing more than an average amount of hair. Some shedding of hair is a normal process and, following any manipulation of the hair such as shampooing, brushing or combing, a noticeable hair fall can be expected. In addition, the average adult hair line indents somewhat over the eyes, replacing the straight hairline of childhood. Although it is true that male baldness originates in this area, many men have this normal patterning without becoming bald.

If the general health of the man is satisfactory and the loss of hair is progressive and in characteristic patterns, the condition is probably, in young men, premature idiopathic baldness or, in older men, senile baldness, referred to previously as ordinary baldness. Medical science does not know any device, substance or method which will regenerate hair lost in these conditions. Neither widely advertised salves, ointments, "tonics," ultraviolet rays, massage nor mechanical devices are effective.

Since this condition is, to the best of our knowledge, a result of constitutional factors or a combination of local and constitutional factors, a thorough physical examination should precede the diagnosis. In a few instances, a mild glandular disorder may exist which can be corrected and hair health improved. In others, diets high in sugars and starches may require modification, although the relationship between diet and hair loss is essentially speculative. The medical history of the person may reveal a recent severe physical or emotional strain which may have been responsible for hair loss. However, in any event, the diagnosis and any treatment of the conditions responsible for the progressive loss of hair are medical matters and should be entrusted only to a competent physician.

The claims of any one that he has developed a remedy for the control or cure of baldness, or that he has inherited a formula for a remedy, or that he has accidentally discovered a remedy or method, should be viewed with the greatest skepticism.

Clinical Notes, Suggestions and New Instruments

RESUSCITATION AFTER FORTY MINUTES OF CARDIAC ARREST

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and
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True cardiac resuscitation has been defined by Fauteux[1] as "full and durable restoration, in due time to avoid eventual death, of the essential functions of a heart which has lost its power to propel blood and which, in all appearances, is unable to recover spontaneously its effective value as a pump." The same author listed the criteria of true cardiac resuscitation as follows: First, the heart must have ceased functioning as a pump, and, secondly, cardiac function must have been fully and permanently restored and life preserved. With the foregoing criteria in mind, we believe that the case about to be reported may be considered one of true cardiac resuscitation. The case is remarkable in that complete recovery followed cardiac arrest of forty minutes' duration. So far as we have been able to ascertain, such a prolonged period of arrest has been exceeded only in a case reported recently by Beck and his co-workers.[2]

REPORT OF A CASE.

D. H., a white boy, 16 years of age, was admitted to The Mount Sinai Hospital on Jan. 10, 1948, complaining of cough, intermittent fever and hemoptysis of seven months' duration. Physical examination disclosed extensive atelectasis of the left lung, which was assumed to be due to some type of occluding endobronchial lesion.

On January 12 the patient was examined bronchoscopically by Dr. Joseph L. Goldman, who reported the presence of a pinkish irregular mass which extended downward, from a point just below the orifice of the upper lobe bronchus of the left lung, to fill the lumen of the left main bronchus. Microscopic examination of specimens removed during bronchoscopic examination revealed "fibrosarcoma with acute inflammation." Accordingly, it was decided to proceed with operation.

Operation was performed by one of us (A. S. W. T.) on January 16. At 7:45 a. m., the patient was given a basal dose of tribromoethanol solution (5 Gm.) by rectum, in order to keep him unaware of the fact that operation was to be performed. Atropine sulfate, 1/150 grain (0.43 mg.), was administered intravenously at 8 a. m.

Inhalation anesthesia, consisting of cyclopropane and ether, was begun by one of us (M. H. A.) at 8:10 a. m. At 8:25 a. m., an oral endotracheal tube was introduced. This was connected to a carbon dioxide absorption, circle-filter anesthetic apparatus. Operation was begun at 8:27 a. m., the blood pressure then being 150 systolic and 90 diastolic and the pulse rate 140. A cannula was inserted into one of the veins at the ankle and a slow intravenous drip of isotonic sodium chloride solution begun. The patient was in the supine position on the operating table.

The left hemithorax was entered through the fourth intercostal space, anteriorly. After opening the pleura, an area of induration was palpated near the hilus of the lung and a pneumonectomy decided on by the surgeon. Sixty milligrams of procaine hydrochloride was injected into the tubing of the intravenous drip. The pulmonary artery was dissected from the pedicle with some difficulty, doubly clamped, divided and ligated with silk. At that juncture (9:05 a. m.), the patient became slightly cyanotic. Simultaneously, there was a moderate diminution in tidal volume and moist gurgling was heard in the endotracheal tube, from which blood was noted to issue freely. In addition, the blood pressure and temporal pulse could not be elicited. The cyanosis persisted for thirty seconds and was followed by deathlike pallor; respirations ceased, and the pupils dilated widely.

The exposed heart was inspected through the unopened pericardium and was found to be beating feebly and slowly, at a rate of approximately 50 per minute. Within a fraction of a minute all ventricular action ceased, but a few weak slow contractions could be noted in the region of the left auricle. Suddenly, the left ventricle exhibited momentary diffuse uncoordinated fibrillary movements, and then all cardiac action ceased. The time interval of these observations was less than one minute.

Therapy and Sequence of Events.—1. Artificial Respiration: Artificial respiration was begun immediately, by means of intermittent manual compression of the breathing bag of the anesthetic apparatus, and was maintained at a rate of 20 to 24 per minute. One hundred per cent oxygen was employed. Repeated aspiration of the tracheobronchial tree was performed, with a catheter. Approximately fifteen minutes after the onset of bleeding, bronchoscopic examination was performed and small amounts of liquid and clotted blood were removed. For two minutes after cardiac pulsation had ceased, the patient was apneic; then occasional gasping respirations at irregular intervals were noted.

2. Cardiac Massage: As soon as the heart beat was noted to have ceased, the patient was placed in the 15 degree Trendelenburg position and manual massage of the heart begun through the intact pericardium. This was maintained at a rate of 40 to 50 per minute. In massaging the heart, the surgeon used a compressing and gliding motion which began at the apex of the heart and moved toward the great vessels. The purpose of this particular maneuver was to attempt to maintain circulation. An interesting and constant pattern of cardiac action now was noted and was repeated whenever the cardiac massage was stopped. The auricles would contract feebly three or four times while the ventricles would exhibit diffuse

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[1] Fauteux, M.: Cardiac Resuscitation, J. Thoracic Surg. **16**: 623-639 (Dec.) 1947.

[2] Beck, C. S.; Pritchard, W. H., and Feil, H. S.: Ventricular Fibrillation of Long Duration Abolished by Electric Shock, J. A. M. A. **135**: 985-986 (Dec. 13) 1947.

ineffective fibrillary movements for a few seconds. Then all cardiac action would cease. The pattern of cardiac action was repeated constantly throughout the period of resuscitation.

3. Fluid and Drug Therapy: At the onset of the resuscitative period, the rate of the intravenous drip was increased, so that 750 cc. of citrated blood was administered during the episode. At 9:10 a. m., a mixture of 80 mg. of procaine hydrochloride and 1 mg. of epinephrine was injected into the left ventricular cavity. No alteration in cardiac action was noted. At 9:25 a. m., a mixture of 60 mg. of procaine hydrochloride and 0.5 mg. of epinephrine was injected into the left ventricular cavity, again without any effect. At 9:30 a. m., 80 mg. of procaine hydrochloride was injected into the tubing of the intravenous drip.

At 9:45 a. m., it was decided to incise the pericardium, in order to apply a dilute solution of procaine hydrochloride directly to the epicardium and also perform more effective cardiac massage. Accordingly, the pericardium was grasped with a hemostat and strong traction exerted, in preparation for incising the pericardial sac. At that juncture, the heart gave a sudden tumultuous extremely forceful beat and regular sinus rhythm was restored. Respirations returned promptly, the rhythm and tidal volumes being normal. The patient's deathlike pallor disappeared, and the pupils contracted considerably. The systolic pressure was found to be 100 mm. of mercury; the temporal pulse could be detected readily, and the rate was found to be 130 per minute.

Photograph of the patient prior to discharge from the hospital (Jan. 30, 1948).

In view of the fact that the pulmonary artery already had been divided, there was no alternative but to proceed with operation as rapidly as possible. During the remainder of the procedure, the patient's color was good; his systolic blood pressure ranged between 90 and 100 mm. and the pulse rate between 120 and 140. Pneumonectomy was completed at 10:45 a. m., the patient leaving the operating room in satisfactory condition.

Postoperative Course.—When he was returned to his room the patient's pulse was regular and strong. Slight cyanosis, which was present, was relieved by 100 per cent oxygen administered through a BLB mask. The patient was totally unresponsive and remained so until 9 p. m. that evening. At that time, he began to move all extremities and opened his eyes; he was incontinent of urine and feces. At 11 p. m. he began to speak and ask for water. His color was good; respirations and pulse were normal. The blood pressure was 110 systolic and 70 diastolic.

First Preoperative Day: In the morning, the patient was found to be rather somnolent, but responsive when called by name. Cursory neurologic examination revealed a bilateral Babinski reflex to be present. By evening the patient responded actively to orders and questions; he complained of vertigo and thoracic pain. By this time he was taking fluids well and had complete control of the rectal and vesical sphincters. No respiratory or circulatory disturbances were noted.

Second Postoperative Day: The patient's general condition was good. There was considerable emotional irritability. He responded rationally to all questions, but his speech was thick and slurred.

Fourth Postoperative Day: The patient's physical condition was good. Results of a careful neurologic examination were entirely negative. His speech was a little clearer; but memory, for recent and past events, was impaired. He was still emotionally labile. Orientation as to time and place was fair. Simple mathematic computations were well performed.

Fifth Postoperative Day: An electrocardiogram revealed sinus rhythm with low voltage of the T wave in leads 1 and 4; this was considered abnormal. Electroencephalographic observations showed an almost continuous and diffuse, but not quite symmetric, delta activity with frequencies as low as 1.5 per second; there was no focus. This was interpreted as due to severe diffuse cerebral dysfunction, as occurring in a great number of clinical conditions, such as multiple abscesses and encephalitis.

From the fifth postoperative day onward, the patient showed rapid improvement. By the eighth postoperative day he was out of bed. His speech, emotional stability and cerebration were decidedly improved. The electrocardiogram on that day was unchanged. By the twelfth postoperative day (January 28) the patient's recovery appeared to be complete and an electroencephalogram showed a large amount of diffuse and almost symmetrical activity (4 to 6 per second), appearing without focal accentuation. This was assumed to be due to a moderate degree of diffuse cerebral dysfunction without evidence of focal pathologic change in the cerebral hemispheres. The record was considered closer to normal than the previous one.

The patient was discharged on the fourteenth postoperative day (January 30), with the wound healed and in very good general physical condition (figure). Approximately two weeks after discharge, the patient was readmitted for a short period of observation. His emotional and mental reactions were normal; he was gaining weight and feeling well. An electrocardiogram, taken during this admission, revealed no definite abnormality. The patient was seen again, approximately four weeks later. At that time he had gained 33 pounds (15 Kg.) in weight and his condition was excellent. The electrocardiogram still was normal. The electroencephalogram revealed a small amount of diffuse and symmetric activity (6 per second) without focal accentuation. This was much less abnormal than the previous tracing. This type of record was considered indicative of a mild degree of diffuse cerebral dysfunction, as occurring in numerous conditions, (e. g., toxic states, encephalitis).

On March 10 the patient was again given a bronchoscopic examination by Dr. J. L. Goldman; a projection of tissue was observed on the posterolateral wall of the stump of the left main bronchus, approximately 3 cm. from the carina. A biopsy specimen was taken; the pathologist reported a mucosal fragment infiltrated by fibrosarcoma.

On March 22 a left exploratory thoracotomy and amputation of the stump of the left main bronchus were performed with nitrous oxide-oxygen-ether orotracheal anesthesia. The operation and anesthesia were uneventful; the patient left the hospital April 1.

The patient was seen again on November 4. His health was excellent; he was entirely free of symptoms. The electrocardiogram and electroencephalogram taken on that day were normal.

COMMENT

The occurrence of cardiac arrest in this case is best explained by a vagovagal reflex arising from active manipulation of the left pulmonary hilus and from irritation of the bronchial mucosa by intrabronchial hemorrhage. Adams and Hand[3] have emphasized factors of premedication, anesthesia and hypoxia in the production of increased vagal excitability; all these factors were present in our case.

It might be well to investigate the reason for this recovery which was remarkable not only because regular cardiac rhythm was restored forty minutes after cessation of the heart beat but also because the patient made a complete recovery. The primary therapeutic measures employed were cardiac massage, artificial respiration and the administration of procaine hydrochloride and epinephrine, both into the heart and intravenously. These, and some other measures available for cardiac resuscitation, will be reviewed briefly.

1. *Cardiac Massage.*—This is the prime factor in maintaining life until effective spontaneous cardiac action is restored. At the present time manual compression of the heart is the only means of maintaining some degree of circulation and cardiac output. Gunn[4] demonstrated experimentally that a dye injected into the right ventricle of an arrested heart appears in the lungs and carotid artery after a few cardiac compressions. Dripps and his co-workers[5] stated that proper cardiac massage can produce a systolic blood pressure of 60 to 70 mm. of mercury. Thus, it appears possible that cardiac massage often can maintain satisfactory cerebral circulation and that irreversible hypoxic damage to the brain can be prevented or reduced to a minimum. A moderate Trendelenburg position is advised to favor cerebral circulation.

The importance of early cardiac massage cannot be overemphasized, for only by such prompt treatment may one hope to combat the damaging effects of hypoxia on the central nervous system. Studies[6] indicate that the first three to five minutes of cerebral hypoxia, whatever the cause, are critical; after that interval irreversible cortical and medullary changes appear. Bailey,[7] on the basis of extensive experience in cardiac resuscitation, stated the opinion that it is hazardous to wait five minutes before instituting cardiac massage; he advocated initiation of cardiac massage within the third minute of the cardiac arrest when an abdominal incision is necessary to reach the heart. Nicholson[8] was even more uncompromising in his attitude and stated that the immediate institution of cardiac massage is indicated.

We are in accord with the opinion expressed by Nicholson, for we believe that procrastination constitutes a serious error in the management of these emergencies. In our case, we were fortunate in having the heart under direct observation at all times, so that no moments were lost in initiating manual compression. The sequence of events thereafter indicates clearly the effectiveness of cardiac massage, and we attribute the successful resuscitation of our patient primarily to the latter.

2. *Artificial Respiration.*—This is a therapeutic measure, the importance of which is surpassed only by that of cardiac massage. The term artificial respiration implies rhythmic insufflation of the lungs, preferably through an endotracheal tube, at the rate of 24 per minute and at a pressure not exceeding 15 mm. of mercury. The function of artificial respiration in cardiac resuscitation is twofold: first, to oxygenate blood in the pulmonary vascular circuit and, second, to aid in the maintenance of circulation. The latter point has been studied by Thompson and his co-workers,[9] who, with the aid of radioactive sodium, demonstrated the effectiveness of artificial respiration in producing movements of the blood column. In another study, Thompson and Rockey[10] observed, ". . . resuscitators employing positive and negative pressures were more efficient in circulating the blood, than those employing only positive pressure and release, or negative pressure and release." Pollock,[11] in his experimental study of cardiac massage, gave support to the work of Thompson; he demonstrated with excellent kymographic tracings that, in the presence of cardiac standstill, rhythmic insufflation of the lungs produces a transmitted pulse and minor fluctuations in blood pressure.

3. *Drug Therapy.*—It is traditional that the aforementioned treatment of cardiac arrest be supplemented by the parenteral administration of a variety of drugs, such as epinephrine and related sympathomimetic amines, nikethamide and digitalis preparations. Such therapeutic measures not only are wasteful of precious moments but are of decidedly questionable value, if not positively harmful when used indiscriminately. The use of digitalis preparations has no place in cardiac resuscitation. The fact that the full therapeutic effect of such drugs becomes manifest only in two or three hours after intravenous administration should be sufficient to eliminate them from consideration in these emergencies.[12] The use of nikethamide, as suggested by some,[13] is open to serious question; certainly, the stimulating effect which it may exert on an already depressed respiratory center may prove harmful. As for the effect of nikethamide on the heart, there is considerable doubt as to its value. In fact, recent studies[14] suggest that it may be deleterious.

The traditional intracardiac injection of epinephrine is now subject to criticism, and a reevaluation of this measure is necessary in the light of experimental and clinical observations. Bailey,[7] in his series of 40 cases of cardiac resuscitation, observed that not once was intracardiac epinephrine of value. (In 1 case, the prick of the intracardiac needle per se appeared to initiate regular sinus rhythm.) It is generally agreed that the intracardiac injection of epinephrine, through the unopened chest, is hazardous, since one usually is ignorant of the precise nature of the cardiac arrhythmia, e. g., cardiac standstill or ventricular fibrillation. In the presence of ventricular fibrillation, epinephrine will potentiate the arrhythmia; in cardiac standstill, epinephrine may precipitate ventricular fibrillation.[1] In either case, the surgeon is ignorant of what actually is happening. When the chest is open and satisfactory observation of cardiac action can be made, the use of epinephrine is suggested to combat cardiac flaccidity and dilatation. Fauteux's[1] experience indicates that the cautious intra-auricular injection of a mixture of barium chloride (5 to 10 mg.) and epinephrine (1 to 2 mg.) is effective in restoring cardiac tone. Beck[15] advised the use of a mixture of calcium chloride and epinephrine to combat cardiac dilatation. Two injections of epinephrine into the ventricle were ineffective in our case.

Recently, considerable attention has been focused on the intravenous use of procaine hydrochloride in the prevention and treatment of cardiac arrhythmias during anesthesia and on the use of procaine hydrochloride as a protection against ventricular fibrillation.[16] A final decision concerning the value of

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3. Adams, H. D., and Hand, L. V.: Twenty-Minute Cardiac Arrest with Complete Recovery, J. A. M. A. **118:** 133-135 (Jan. 10) 1942.

4. Gunn, J. A.: Massage of Heart and Resuscitation, Brit. M. J. **1:** 9 (Jan. 1) 1921.

5. Dripps, R. D.; Kirby, C. K.; Johnson, J., and Erb, W. H.: Cardiac Resuscitation, Ann. Surg. **127:** 592-604 (April) 1948.

6. Weinberger, L. M.; Gibbon, M. H., and Gibbon, M. H., Jr.: Temporary Arrest of the Circulation to the Central Nervous System: Physiologic Effects, Arch. Neurol. & Psychiat. **43:** 615-634 (April) 1940.

7. Bailey, H.: Cardiac Massage for Impending Death Under Anesthesia, Brit. M. J. **2:** 84-85 (July 19) 1941.

8. Nicholson, J. C.: Cardiac Massage, Brit. M. J. **1:** 385-386 (March 21) 1942.

9. Thompson, S. A.; Quimby, E. H., and Smith, B. C.: Effect of Pulmonary Resuscitative Procedures upon Circulation as Demonstrated by Use of Radioactive Sodium, Surg., Gynec. & Obst. **83:** 387-391 (Sept.) 1946.

10. Thompson, S. A., and Rockey, E. E.: The Effect of Mechanical Artificial Respiration upon Maintenance of the Circulation, Surg., Gynec. & Obst. **84:** 1059-1064 (June) 1947.

11. Pollock, G. A.: Cardiac Massage: An Experimental Study, Brit. M. J. **2:** 157-158 (Aug. 8) 1942.

12. Sollman, T. H.: Manual of Pharmacology and Its Applications to Therapeutics and Toxicology, ed. 7, Philadelphia, W. B. Saunders Company, 1948, pp. 472-473.

13. Fauteux.[1] Adams and Hand.[3]

14. Eckenhoff, J. E., and Hafkenschiel, J. H.: The Effect of Nikethamide on Coronary Blood Flow and Cardiac Oxygen Metabolism, J. Pharmacol. & Exper. Therap. **91:** 362-369 (Dec.) 1947.

15. Beck, C. S.: Resuscitation for Cardiac Standstill and Ventricular Fibrillation Occurring During Operation, Am.J. Surg. **54:** 273-279 (Oct.) 1941.

16. (*a*) Bursten, C. L., and Marangoni, B. A.: Protecting Action of Procaine Against Ventricular Fibrillation Induced by Epinephrine During Cyclopropane Anesthesia, Proc. Soc. Exper. Biol. & Med. **43:** 210-212 (Jan.) 1940. (*b*) Bittrich, N. M., and Powers, W. F.: Intravenous Procaine in Thoracic Surgery, Anesth. & Analg. **27:** 181-196 (July-Aug.) 1948. (*c*) Lampson, R. S.; Schaeffer, W. C., and Lincoln, J. R.: Acute Circulatory Arrest, J. A. M. A. **137:** 1575-1578 (Aug. 28) 1948. (*d*) Mautz, F. R.: Resuscitation of the Heart from Ventricular Fibrillation with Drugs Combined with Electric Shock, Proc. Soc. Exper. Biol. & Med. **36:** 634-636 (June) 1937.

the intravenous use of procaine hydrochloride in these conditions is not yet possible, because of conflicting reports. However, it appears that intravenous use of procaine hydrochloride offers some protection against experimental ventricular fibrillation and cardiac arrhythmias occurring with anesthesia. It also seems that ventricular fibrillation can be more readily controlled by direct electric shock therapy when combined with intravenous use of procaine hydrochloride than when used alone.

In our case, 80 mg. of procaine hydrochloride was administered intravenously before the accident occurred; this was in keeping with our practice of giving an initial dose of 75 to 100 mg. of procaine hydrochloride intravenously when lobectomy or pneumonectomy is planned. The later doses of intracardiac procaine hydrochloride were given either alone or in combination with epinephrine. In both circumstances, procaine hydrochloride was used to prevent the onset of ventricular fibrillation by the mechanical irritation of cardiac massage and by the injected epinephrine. One cannot be dogmatic in evaluating the role of procaine hydrochloride in this successful resuscitation. It can be stated only that the drug had no untoward effect (cardiac dilatation and flaccidity) and that it may have prevented protracted ventricular fibrillation. It is significant that, in spite of the intracardiac administration of epinephrine and the use of continuous cardiac massage, only very transient periods of fibrillary movements were observed.

Unquestionably, a major factor in our successful resuscitation was the fact that the patient was young. The chances for restoration of action in cardiac standstill and for control of ventricular fibrillation are best in the absence of myocardial damage. This is most apt to occur in young subjects.

The sudden return of regular sinus rhythm in our case occurred with clamping and traction of the pericardium. It appears unlikely that this was a purely coincidental or fortuitous event, and it seems reasonable to believe that some potent stimulatory reflex was initiated to restore cardiac action. The nature and pathway of this reflex merely can be assumed. Coffey and his co-workers [17] have described a pathway from the pericardium, via the phrenic nerve, to the superior sympathetic cervical ganglion, and it is possible that a powerful stimulus, traversing this pathway, served to initiate the cardiac action.

4. *The Problem of Ventricular Fibrillation.*—Ventricular fibrillation, in contrast to cardiac arrest, presents a unique problem. In the former, it first is necessary to stop the fibrillary movements before one can hope to restore regular sinus rhythm. Cardiac massage per se will not stop fibrillation; on the contrary, it may potentiate the arrhythmia. With these points in mind, Beck and his co-workers [2] have used an electrical apparatus to shock and defibrillate the heart. The clinical effectiveness of the apparatus already has been confirmed. Procaine hydrochloride has been advised as an adjuvant in electrical defibrillation, and Mautz [16d] has shown that intravenous use of procaine hydrochloride, when combined with electrical shock, restored a coordinated beat in practically all of the experimental animals with ventricular fibrillation, whereas electrical shock alone was successful in only one half of the animals. In the absence of a defibrillating apparatus, intra-auricular injection of procaine hydrochloride and cardiac massage should be used, in the hope of controlling the fibrillation.

SUMMARY

A case of cardiac arrest of forty minutes' duration, occurring during pneumonectomy, with full and complete recovery is reported. The therapeutic measures used were immediate cardiac massage, artificial respiration, intracardiac use of epinephrine and intravenous use of procaine hydrochloride. Regular sinus rhythm appeared following strong traction on the pericardium. The therapy of cardiac standstill is discussed.

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[17] Coffey, W. R.; Brown, P. K., and Humber, J. D.: Angina Pectoris: The Anatomy, Physiology and Surgical Treatment, New Orleans, A. J. Dickerson, 1927.

Council on Physical Medicine

REPORTS OF THE COUNCIL

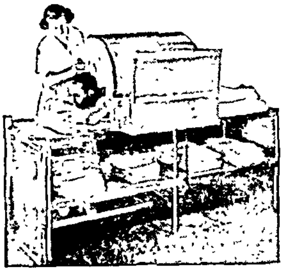
The Council on Physical Medicine has authorized publication of the following reports. Howard A. Carter, *Secretary.*

MOISTAIRE HEAT THERAPY UNIT MODEL 420 ACCEPTABLE

Manufacturer: The Ries Corporation, 515 South Aiken Avenue, Pittsburgh 6.

The Moistaire Heat Therapy Unit Model 420 is the same as the Saturated Air Fever Therapy Unit (Equipment Service Company, Pittsburgh) that was listed in Apparatus Accepted, Sept. 30, 1947. Certain improvements have been made, but in addition the apparatus has been renamed and the Ries Corporation has succeeded the Equipment Service Company.

This apparatus is essentially a stainless steel table bearing a cabinet of such shape and size that only the head and feet of the subject project from the chamber in which the warmed water-vapor is applied to the subject's body; the unit includes the table, the treatment hood and tank, the recirculating unit, moisture-proof curtains, a latex mattress with moisture-proof covering and a 3,800 cc. (4 quart) container for water. The table measures 76 cm. (30 inches) in height, 67 cm. (26½ inches) in width and 183 cm. (72 inches) in length. The mattress measures 61 by 173 by 6½ cm. (24 by 72 by 2½ inches). The unit as a whole weighs 180 Kg. (400 pounds); the shipping weight is 230 Kg. (505 pounds). The motor requires a 110 to 115 volt 60-cycle alternating current and draws 1,190 watts (12 amperes).



Moistaire Heat Therapy Unit Model 420.

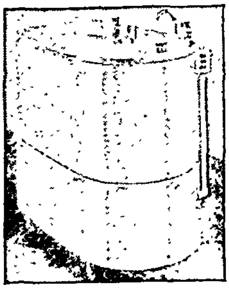
During a treatment, air saturated at a water temperature of about 54.4 C. (130 F.) enters the treatment hood. Here the temperature falls to about 50.5 C. (123 F.) before the air returns to the conditioning device. Thus saturation is assured.

The Council was furnished with evidence that this apparatus has given satisfactory service in the hands of practicing physicians and is well adapted to its purpose. The Council on Physical Medicine voted to include the Moistaire Heat Therapy Unit Model 420 in its list of accepted devices.

ROCKE HYDROTHERAPY BATHS MODELS 31 AND 41 ACCEPTABLE

Manufacturer: Wm. Rocke Co., Inc., 623 Madison St., Evanston, Ill.

The Rocke Hydrotherapy Baths are convenient devices for immersing part or all of the body in water. Both are provided with means for agitating the water. Model 31 is intended for the patient's arms or legs only; model 41 is large enough to immerse the patient, in the sitting position, up to the neck.



Rocke Hydrotherapy Bath Model 41.

Model 31 is made of anodized aluminum in one piece and has a capacity of 75 liters (20 gallons). It stands 86 cm. (34 inches) high and weighs 52 Kg. (115 pounds). When crated for domestic shipment it measures 73 by 67 by 95 cm. (28¾ by 26½ by 37⅓ inches) and weighs 63 Kg. (140 pounds). The foreign shipping weight is 68 Kg. (150 pounds). This model has two switches, one for the circulator power unit (¼ horsepower motor) and the other for the drain pump (a ⅒ horsepower motor). Motors can be supplied to run on either 110-120 or on 220-230 volts of alternating current, and the same for direct current; the power consumption is 400 watts.

Model 41 is made of stainless steel, seamlessly welded with a beaded rim, and holds 150 to 190 liters (40 to 50 gallons). The actual dimensions of the model 41 are 90 high by 56 wide by 107 cm. long (35 by 22 by 42 inches). When crated for domestic shipment it measures 116 by 75 by 100 cm. (45½ by 29½ by 39½ inches) and weighs 120 Kg. (265 pounds); the foreign shipping weight is 130 Kg. (290 pounds). This model has two ¼ horsepower motors for the circulator unit and a ⅒ horsepower motor for the drain pump. The types of current needed are the same as for model 31, but the power consumption is 800 watts.

The Council obtained evidence that these two devices are well constructed, safe and efficient. Model 31 is very much the same as the apparatus the acceptance of which was announced in THE JOURNAL of Nov. 13, 1943, page 701.

The Council on Physical Medicine voted to include the Rocke Hydrotherapy Baths, Models 31 and 41, in its list of accepted devices.

SILVER MICRONIC HEARING AID, MODELS 202 M AND 202 C ACCEPTABLE

Manufacturer: Micronic Company, 727 Atlantic Avenue, Boston 11.

These two instruments are substantially similar except that they are provided with magnetic and crystal types of receivers respectively. A single case contains amplifier, microphone and batteries.

Silver Micronic Hearing Aid, Models 202C & 202 M.

The outside dimensions of the case, including control switches but excluding clothing clips, are 107 by 55 by 20 mm. (4¼ by 2⅙ by ⅘ inch). Its weight, including batteries and crystal receiver, is 156 Gm. (5½ ounces).

Battery Data:

	Milliamperes
A Battery	50
B Battery magnetic receiver (quiet)	0.5
B Battery magnetic receiver in presence of sound	0.6
B Battery crystal receiver (quiet)	0.4
B Battery crystal receiver in presence of sound	0.5

The results of the performance tests of the Micronic are as follows:

Micronic Model 202 M Hearing Aid

				Articulation Scores	
Subject	Tone Setting	Volume	Acoustic Gain	Micronic 202 M	Reference
A	1	½	53 db.	81%	80%
B	3	⅞	47 db.	83%	77%

Micronic Model 202 C Hearing Aid

				Articulation Scores	
Subject	Tone Setting	Volume	Acoustic Gain	Micronic 202 C	Reference
A	1	½	53 db.	81%	80%
B	3	⅞	43 db.	80%	77%

Both subjects are habitual users of hearing aids. A's deafness is of the mixed type with 47 decibel loss for speech. Subject B has conductive deafness with 49 decibel loss for speech.

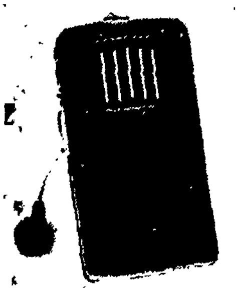
The Council on Physical Medicine voted to include the Silver Micronic Hearing Aid, Models 202 M and 202 C, in its list of accepted devices.

TONEMASTER MODEL ROYAL HEARING AID ACCEPTABLE

Manufacturer: Tonemasters, Inc., 1627 Pacific Avenue, Dallas 1, Texas.

The Tonemaster Model Royal Hearing Aid is a self-contained type hearing aid.

The dimensions of the instrument, including the clothing clips, are 119 by 65 by 23 mm. (4¾ by 2½ by 15/16 inch). The weight, including batteries, cord and magnetic receiver, is 238 Gm. (8.4 ounces).



Tonemaster Model Royal Hearing Aid.

Battery Data:

	Milliamperes
A Battery	41
B Battery (quiet)	0.58
B Battery in presence of sound	0.32

The results of the performance tests of the Tonemaster are as follows:

				Articulation Scores	
Subject	Tone Setting	Volume	Acoustic Gain	Tonemaster	Reference
A	Vertical	Full	51 db.	86%	80%
B	Middle	Full	52 db.	90%	77%

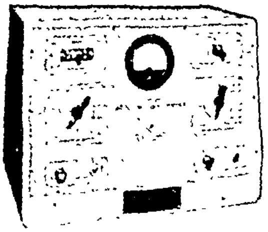
Both subjects are habitual users of hearing aids. A's deafness is of the mixed type with 47 decibel loss for speech. Subject B has conductive deafness with 49 decibel loss for speech.

The Council on Physical Medicine voted to include the Tonemaster Model Royal Hearing Aid in its list of accepted devices.

GOLSETH-FIZZELL CONSTANT CURRENT IMPULSE STIMULATOR, MODEL DS, ACCEPTABLE

Manufacturer: Chicago Medical Electronics Laboratory, Inc. 214 Ward Building, Battle Creek, Mich.

The Golseth-Fizzell Constant Current Impulse Stimulator, Model DS, with Electronic Timing Control, is an instrument designed to deliver direct-current stimuli in the diagnosis and treatment of nervous and muscular disorders. The apparatus is housed in a rectangular case that is provided with a handle and weighs about 13 Kg. (28 pounds). It measures 42 by 30 by 28 cm. (16½ by 12 by 11 inches) and operates on 115 volt 60 cycle alternating current. All the necessary accessories are carried within the cabinet cover.



Golseth-Fizzell Constant Current Impulse Stimulator, Model DS.

The duration of the impulse can be set at various predetermined values ranging from 1 up to 1,500 milliseconds. The interval between impulses can be set at 1, 5, 12, 1,000 or 4,000 milliseconds. The current intensity is registered from 0 to 25 milliamperes on a well damped milliammeter, and a potentiometer permits easy adjustment of the intensity. The dispersive electrodes furnished are round, flat metal disks 4.5 cm. and 3.25 cm. in diameter. The two active electrodes furnished are 1 and 2 cm. in diameter. The following diagnostic or prognostic tests can be made with the instrument: (1) galvanic tetanus ratio, (2) rheobase measurement, (3) chronaxis measurement, (4) strength-duration curve and (5) repetitive stimuli test.

Evidence was obtained from an acceptable clinic that the device was satisfactory for the aforementioned purposes. The Council on Physical Medicine voted to include the Golseth-Fizzell Constant Current Impulse Stimulator, Model DS, in its list of accepted devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

Austin Smith, M.D., *Secretary.*

LIPO-ADRENAL CORTEX.—An oil-soluble extract of hog adrenal glands concentrated by fractionation and containing crystalline biologically active constituents of what are considered to be 17-hydroxycorticosterone, 11 dehydro-17-hydroxycorticosterone and corticosterone and a noncrystallizable amount of 11-dehydrocorticosterone. The extract is practically free of epinephrine. It is assayed biologically according to the survival growth method of Cartland and Kuizenga (*Am. J. Physiol.* **117**:678, 1936) and the muscle-work test of Ingle (*Endocrinology* **34**:191, 1944).

Actions and Uses.—Lipo-Adrenal Cortex is employed for the same indications as for Adrenal Cortex Extract, but is supplied in oil solution only for intramuscular injection when more prolonged absorption is desired.

Dosage.—The dosage varies according to the degree of cortical insufficiency and should be governed by the clinical response. In crisis or the presence of infection or other complications as much as 2 to 3 cc. daily may be required, while 1 to 2 cc. daily may be sufficient for maintenance. Sodium salts are of definite value to supplement adrenal cortex therapy.

It should be borne in mind that lipo-adrenal cortex has approximately ten times the cortical activity of adrenal cortex extract and because it is administered in oil solution it should never be injected intravenously.

Preparation.—

Lipo-adrenal cortex is prepared by a method described by Kuizenga, Wick, Ingle, Nelson and Cartland (*J. Biol. Chem.* **147**:561, 1943). Frozen hog adrenal glands are extracted with chilled acetone and the gland residue removed by filtration. Sufficient water is then added to the acetone extract to make a 60 per cent acetone solution. A liquid fat fraction which separates is extracted with 20 per cent acetone, and the combined 60 per cent and 20 per cent acetone extracts are concentrated *in vacuo* to remove the acetone. The aqueous solution is then extracted with petroleum ether, followed by extraction with ethylene dichloride to obtain the active fraction. The ethylene dichloride solution is concentrated *in vacuo* below 40 C. and the residue dissolved in 95 per cent alcohol. Residual amounts of fat and cholesterol are removed by extraction of aqueous alcohol solutions with petroleum ether, which is done first from 70 per cent ethyl alcohol, then from 50 per cent methyl alcohol and, finally, from 30 per cent methyl alcohol. The 30 per cent methanol solution, free of petroleum ether-soluble material, is concentrated to remove alcohol and the cloudy aqueous solution is extracted with ethyl acetate. Acidic and basic substances are removed by washing the ethyl acetate solution with sodium carbonate, followed by 0.5 N HCl and, finally, distilled water. The ethyl acetate solution is dried with anhydrous $MgSO_4$. The dry concentrate from ethyl acetate is dissolved in acetone and the required amount of cotton seed oil and 0.5 per cent chlorobutanol is added. The acetone is completely removed *in vacuo* with a stream of N_2 gas and the resulting oil solution is sterilized by Seitz filtration.

The Upjohn Company, Kalamazoo, Mich.

Solution Lipo-Adrenal Cortex: 1 cc. and 5 cc. vials. Each cubic centimeter contains not more than 7.5 mg. of gland extractive solids having a potency of 40 rat units (Survival-Growth) and the equivalent in biological activity to 2 mg. of 11-dehydro-17-hydroxycorticosterone (Muscle-Work Test) in cottonseed oil. Preserved with chlorobutanol 0.5 per cent.

PERTUSSIS VACCINE COMBINED WITH TETANUS TOXOID.—A combination of pertussis-tetanus antigens prepared by suspending 40,000 million phase I, *H. pertussis* organisms in each cubic centimeter of fluid tetanus toxoid of the potency required by the National Institute of Health.

Actions and Uses.—Pertussis vaccine combined with tetanus toxoid is employed for the simultaneous active immunization of persons susceptible to both these infections. The combination is suitable for initial basic immunization as well as for follow-up stimulation because the dosage intervals for satisfactory results are similar for both antigens. It is intended primarily for use when it is considered expedient or preferable to administer diphtheria immunization separately.

Dosage.—For basic immunization of infants, three subcutaneous injections consisting of 0.5 cc., 1.0 cc., and 1.0 cc. are administered consecutively at intervals of one month. For use as a "booster" to stimulate greater and more prolonged immunity, a single follow-up dose of 1.0 cc. is recommended one year after basic immunization has been completed.

Cutter Laboratories, Berkeley, Calif.

Tetanus Toxoid and Bacterial Vaccine Made from H. Pertussis Combined: 2.5 cc. (one complete immunization) and 10 cc. (four complete immunizations) vials. 40,000 million phase I, *H. pertussis* per cc. Preserved with sodium ethylmercuri thiosalicylate 1 : 10,000.

PERTUSSIS IMMUNE SERUM (HUMAN) (See New and Nonofficial Remedies 1948, p. 487).

The following dosage form has been accepted:

Cutter Laboratories, Berkeley, Calif.

Antipertussis Serum (Human): A highly purified and concentrated globulin prepared from human donors immunized with *H. pertussis* vaccine. Preserved with sodium ethylmercurithiosalicylate 1 : 10,000. Each vial contains 2.5 cc., which represents the initial dose. Dose may be repeated as often as indicated by the condition of the patient.

THIAMINE HYDROCHLORIDE-U. S. P. (See New and Nonofficial Remedies 1948, p. 548).

The following dosage form has been accepted:

Cole Chemical Company, St. Louis 8

Solution Thiamine Hydrochloride: 15 mg. and 30 mg. per 30 cc. bottles and 475 cc. and 3.78 liter bottles.

Tablets Thiamine Hydrochloride: 1 mg., 3 mg. and 5 mg.

ESTROGENIC SUBSTANCES (WATER INSOLUBLE) (See New and Nonofficial Remedies 1948, p. 370).

The following dosage form has been accepted:

Ayerst, McKenna & Harrison, Ltd., New York

Aqueous Suspension Estrogenic Substances: 10,000 I. U. and 20,000 I. U. per cc., 10 cc. vials; 50,000 I. U. per cc., 5 cc. vials.

DIENESTROL (See New and Nonofficial Remedies 1948, p. 377).

The following dosage form has been accepted:

Carroll Dunham Smith Pharmacal Co., New Brunswick, N. J.

Tablets Dienestrol: 0.1 mg. and 0.5 mg.

STREPTOMYCIN (See New and Nonofficial Remedies 1948, p. 159).

The following additional dosage form has been accepted:

The Wm. S. Merrell Co., Cincinnati 15

Streptomycin Calcium Chloride Complex: 6.5 Gm. vials equivalent in activity to 5 Gm. of streptomycin base.

SULFAMERAZINE-U. S. P. (See New and Nonofficial Remedies 1948, p. 134).

The following dosage form has been accepted:

American Pharmaceutical Company, New York 18

Tablets Sulfamerazine: 0.5 Gm.

SODIUM ASCORBATE INJECTION-U.S.P. (See New and Nonofficial Remedies 1948, p. 561).

The following dosage form has been accepted:

William H. Rorer, Inc., Philadelphia 6

Solution Sodium Ascorbate: 100 mg. per cc., 5 cc. and 10 cc. ampuls. Each cc. contains sodium ascorbate equivalent to 100 mg. of ascorbic acid, stabilized with thiourea .01 per cent in sterile aqueous solution.

TYROTHRICIN (See New and Nonofficial Remedies 1948, p. 66).

The following dosage form has been accepted:

S. B. Penick & Company, New York 7

Tyrothricin: Bulk. 100 Gm., 500 Gm. and 1,000 Gm. glass jars.

CONTRACEPTIVE JELLIES AND CREAMS (See New and Nonofficial Remedies 1948, p. 286).

The following dosage form has been accepted:

Julius Schmid, Inc., New York 19

Ramses Vaginal Jelly: 143 Gm. collapsible tubes.

THE JOURNAL OF THE
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SATURDAY, MARCH 26, 1949

DEXTRAN AS A PLASMA SUBSTITUTE

Dextran, though scarcely known in this country, has been extensively studied in Sweden and has already achieved a fairly wide use there in intravenous solution as a means of treating various types of surgical shock. In this country, especially since the war and with the development of blood banks, whole blood and plasma have been more and more widely used for such a purpose. Nevertheless, the field for a satisfactory plasma substitute is far from closed. Indeed, considerable promise was held forth recently for newer preparations of gelatin solutions in the therapy of surgical shock of certain types. Earlier attempts to use such substances as acacia and pectin, while at first apparently successful, were doomed a priori because they were really foreign substances which the body had no way of metabolizing; they accumulated in the tissues and, if the amount injected was large, serious anatomic changes followed. Even gelatin, though a true protein, may not be utilized as such by the body. Although final evidence is lacking, infusions of gelatin probably reach the tissues and behave just as much as a foreign body as surgical gut, which, also a protein, is not really metabolized, but rather attacked and removed by phagocytes. Moreover, gelatin is classed as a fibrous protein, being long and stringlike, thus lacking the globular shape of albumin and most other plasma proteins, a difference of perhaps some importance.

Dextran is unlike other plasma substitutes in that it is composed of molecules of glucose, a substance which is, of course, normally metabolized by the body and indeed is an excellent source of energy. Dextran was first discovered by the Germans as an annoying complication sometimes encountered in sugar refineries. In the process of extraction of sugar from beets, a mucoid material would occasionally form which interfered with the speed of filtration. This material was observed only in sugar solutions which happened to be infected with a bacterium later identified as Leuconostoc mesenteroides. This organism had the remarkable property of joining glucose molecules in long chains including side chains, thereby forming polysaccharides with molecular weights in the millions. Most of the recent work has been done in Sweden by biochemists working in close collaboration with the Swedish sugar beet industry.[1]

Dextran was first prepared and then hydrolyzed so that it attained a molecular weight of about 100,000, which is close to that of plasma albumin. Various solutions were then carefully prepared and injected intravenously as a plasma substitute. The basic work in animals was carried on by Grönwall and Ingelman,[2] who found that the solution was well tolerated and seemed rather effective in treating experimental shock. It was then injected in human beings at the Central Hospital in Örebro by Bohmansson, Rosenkvist, Thorsén and Wilander.[3] The earlier solutions were tested in hopeless cases of cancer. Difficulty was experienced in producing a solution of constant composition, but a more or less uniform preparation was finally obtained which has been widely used in thousands of cases and shown to be almost entirely free of untoward reactions and with definite physiologic and therapeutic properties.

As used in Sweden at the present time, a 6 per cent dextran solution in 0.9 per cent sodium chloride solution is injected intravenously in amounts of 400 cc. up to as much as 3,000 cc. in the treatment of shock due largely to loss of plasma such as in burns, peritonitis and postoperative and post-traumatic states, and also as a prophylactic injection when shock is feared. Its effect in elevating low blood pressure is prompt and lasting in the cases described. One of its uniform actions is a rise in the sedimentation rate, which reaches its maximum at the end of the infusion and then gradually returns to normal in the course of a few days. Chemical methods of measuring dextran have been devised, and these show that about 25 per cent of the material infused (presumably the smaller-sized particles) is excreted by the kidneys during the few hours immediately following, but that the level in the blood itself falls rather slowly over the course of about four days. Study of the tissues following infusion in animals shows no evidence that dextran has accumulated therein after leaving the blood stream. This suggests but does not prove that the polysaccharide is broken down to glucose and then metabolized. As might be expected hematocrit measurements show hemodilution following the infusion of dextran, although there seems to be a curious reversal of this effect for a few hours; i. e., the relative red cell volume falls rapidly at first, then returns to normal in about an hour, falling again during the sixth to eighth hour and remaining low for at least twenty-four hours thereafter. This is explained by the authors as due to the emptying of blood depots of red cells. Evidence of renal or hepatic damage has not been seen, although the authors frankly admit that this possibility cannot be eliminated until several years have passed.

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[1] Ingelman, B.: Acta Chem. Scandinav. 1:731, 1947.

[2] Grönwall, A., and Ingelman, B.: Acta. Physiol. Scandinav. 7:97, 1944 and 9:1, 1945.

[3] Bohmansson, G.; Rosenkvist, H.; Thorsén, G., and Wilander, O.: Acta. Chir. Scandinav. 94:149, 1946.

An important though still theoretic advantage of dextran as a clinically safe and effective plasma substitute lies in its chemical nature. Being composed exclusively of glucose molecules, it is presumably metabolized by the body as a source of energy. This requires hydrolysis of the dextran by appropriate blood or tissue enzymes. Although suggestive evidence has been obtained as described in the foregoing, more data are necessary. Final proof will doubtless be forthcoming and, if it is true that dextran is actually hydrolyzed to glucose by the body, this theoretic advantage will become a real one. Only in this way can its superiority over other plasma substitutes which act as foreign substances be definitely established. Moreover, glucose is always needed, especially by patients receiving fluids intravenously; even if dextran furnishes glucose slowly, it could thus claim an additional therapeutic effect entirely apart from its colloidal property. The disadvantage of dextran because it is a long, stringlike molecule still remains, but this may be of much less importance. The development of this new therapeutic agent represents an example of what can be achieved through close association between medicine and industry.

THE CANADIAN NATIONAL HEALTH PROGRAM

At the November meeting of the Royal College of Physicians and Surgeons of Canada, the Honorable Paul Martin, Minister of National Health, reported progress of the National Health Program.[1] The minister expressed many points of view of the Canadian Government toward the medical profession which contrast sharply with views and attitude expressed by officials in the United States. Chief among these expressions of attitude was the statement that action would not be taken by the present Canadian Government under any program for the improvement of health services in Canada which would "stifle or destroy the liberty of the individual doctor." In order to provide better health for the citizens of its country, the Canadian Government looks first to the medical profession for leadership. Regimentation of doctors and professional personnel generally was considered to be ruinous to any expectation for health progress. Minister Martin stated, "In any sensible health plan the doctor holds a responsible position. Will we not want to see that doctors should continue to be free to serve their patients—not that they should become mere servants of the state." Discussing the responsibilities of the Provinces and the Federal Government in the program, Mr. Martin said that while health is of obvious national concern, it still must be considered primarily a provincial responsibility. Except for such services as inspection of food and drugs, quarantine, and health care for marine and Indian groups, planning and administration must be centered in the Province. It was considered folly to attempt to administer a centralized program from the dominion capitol. The clear responsibility of the Federal Government is emphasized to be that of cooperation with professional authorities in the coordination of efforts. The centralization of administration in the hope of creating efficiency was stated to be an illusion, "such centralization would badly serve the Canadian citizens."

Major objectives of the Canadian National Health Program, which has now been in operation some five months are stated to be: 1. Comprehensive and searching surveys of the Canadian health scene to be made by each province and a formulation by each province of its plans for the future. For this purpose grants of federal funds are made to the provinces. 2. The strengthening and extension of provincial health services through widening the range of preventive medicine, encouragement of public health research, the training of professional health workers and increased services in the fields of venereal disease, tuberculosis, cancer and mental illness. 3. The stimulation of provision for increased hospital accommodations to be encouraged by annual grants to the provinces up to a total of 65 million dollars over a period of five years. Grants would be based on a government contribution of from 1,000 to 1,500 for each hospital bed on the condition that the provinces match these grants.

In each case, stress is laid on the autonomy of the provinces as opposed to federal centralization. In spite of the fact that the program has been under way for such a short time, the provinces have actively cooperated by enthusiastically undertaking comprehensive surveys of health conditions in each of the provinces. Reviewing health progress in Canada during the last twenty years, the minister indicated that the general death rate had dropped 17 per cent; infant mortality had decreased by 44 per cent and maternal mortality had decreased 42 per cent. These are indicative of the effectiveness of present methods. The Canadian program stresses the importance of preventive medicine and the need for including the general practitioner and family doctor in plans for improved preventive work. In his closing remarks to the Royal College, the minister stated, "It should be your concern as leaders in Canadian medicine above all else tc guard against any action, whether it be by private agency or by government, that would lower the standard of medical practice. All our health programs would fail if the intangibles of medical progress—the quality of medical training, the doctor's instinct for selfless service—should in any degree be allowed to deteriorate."

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[1] Martin, P.: Canada's National Health Program, read at the annual meeting of the Royal College of Physicians and Surgeons of Canada, Ottawa, Nov. 27, 1948.

The Canadian program when under full swing will cost the Government approximately 30 million dollars yearly. This amount will be distributed to the provinces in accordance with the needs and plans of each. The outstanding principle of the over-all federal program, and of the individual projects to be sponsored and carried out by each province, is that the greatest emphasis be placed on research, training of personnel and mass attacks on environmental factors of disease.

The reluctance of the Canadian Government to do anything which will interfere with the treatment of individual patients by individual physicians marks the basic philosophy of the Canadian plan.

PROVISIONAL DEFINITION OF POLIOMYELITIS VIRUS

Confusion regarding restrictions that should be applied to the term poliomyelitis virus, as opposed to other allied terms such as encephalomyelitis or encephalitis virus, has recently been considered by the Committee on Nomenclature of the National Foundation for Infantile Paralysis. Recommendations submitted were that the term poliomyelitis virus be used only to designate strains of the agent originally described as the cause of poliomyelitis in man, regardless of the source from which it may be recovered in nature. The identifying characteristics of this virus are the production of typical experimental disease in the monkey, the characteristics and distribution of histologic lesions in the spinal cord and brain of primates, the host range of the virus and its immunologic properties.

The clinical signs of disease in monkeys include fever, tremor and spasticity of muscles, usually followed by paralysis within a day or two. Severe generalized tremors are considered almost without exception to be pathognomonic of poliomyelitis. Pathologic lesions in the monkey essentially duplicate those in human beings in type and distribution. Spinal cord lesions are concentrated in the gray matter and primarily in the anterior horn cells. These are accompanied by focal and diffuse infiltration of leukocytes in areas of nerve cell damage. The cerebral cortex is noted to be generally spared and the deep cerebellar nuclei are generally involved.

Virus which produces the characteristic experimental disease in monkeys but does not infect other mammals may be considered poliomyelitis virus. In addition, certain strains isolated from typical cases have the capacity of producing paralytic poliomyelitis in mice, hamsters and cotton rats, but not in guinea pigs or rabbits. These strains appear to be immunologically related to the Lansing-1938 strain.

The committee stated that certain strains of encephalomyelitis virus of mice or "mouse poliomyelitis" (e. g., TO, FA, GD VII) and other viruses that produce lesions in the anterior horns of spinal cords in experimental animals but that do not otherwise satisfy criteria set down for poliomyelitis virus, should not be called "poliomyelitis virus," "mouse poliomyelitis virus" or "poliomyelitis-like virus."

MENTAL HEALTH AND INTERNATIONAL TENSIONS

Members of the UNESCO Conference on World Tensions[1] and the International Congress on Mental Health[2] have recently reported deliberations of major significance to world peace. The conclusions are based chiefly on the psychiatric premise that human emotions ("human nature") can now be scientifically studied, understood and even changed both for the individual and the group. Wars are unnecessary and are not considered inevitable consequences of human nature. Some needs are vital to all men: these include freedom from disease, insecurity and fear. Men everywhere desire at the same time fellowship, respect of their fellowmen and a chance for personal growth and development.

Inequalities in the use of modern productive power and resources were considered partially responsible for economic inequalities, insecurities and frustrations which lead to group and national conflict. One group may be wrongly led to see another group as a menace through acceptance of false images and oversimplified solutions. Myths, traditions and symbols of national pride handed down from generation to generation, plus current social and nationalistic symbols, are believed to hinder free movement of thought across artificial political boundaries of an interdependent world. The report suggests that neither continued colonial exploitation nor oppression of minorities is compatible with world peace.

As general standards of mental health are not universally applicable, a universal recommendation for the provision of types and numbers of psychiatric hospitals and clinics per unit of population cannot be made now. The primary concern of workers in the field of mental health is the development of methods for the release of human potentialities individually and collectively for the common good.

This newly clarified concept of the modifiability of human nature through insight into otherwise unconscious obstructions suggests ways of removing obstacles to personal and social development. The primary factors leading to better mental health are the acquirement by the individual of self knowledge and group social insight. Effort in behalf of one's own group can become compatible with effort in behalf of humanity generally.

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1. UNESCO Conference on World Tensions—An International Multidisciplined Group, Psychiatry **11**: 231-233 (Aug.) 1948.
2. International Congress on Mental Health London, August 1948: Statement by International Preparatory Commission, Psychiatry **11**: 235-261 (Aug.) 1948.

ANTIBACTERIAL THERAPY OF TUBERCULOSIS

Modern antibacterial therapy of tuberculosis using streptomycin or sulfone compounds has never been hailed as a definitive self-sufficient method of treatment. Nevertheless, some authors of articles directed to the public have at times been less critical in their appraisal. A troublesome disregard of the limitations and hazards of treating tuberculosis with such drugs as streptomycin has become apparent. Physicians are pressed by anxious patients or their friends to use streptomycin instead of other well established methods.

A recent report of the Clinical Subcommittee of the Committee on Medical Research and Therapy of the American Trudeau Society (Medical Section of the National Tuberculosis Association) offers specific recommendations:

> Streptomycin appears to be most effective in the treatment of recent, acute, fairly extensive, and progressing pulmonary tuberculous lesions. Its use is particularly recommended in the treatment of tuberculous pneumonia. Symptomatic relief and roentgenologic improvement are common in many types of pulmonary tuberculosis soon after initiating therapy with streptomycin. In general, the degree of benefit is in direct proportion to the extent of the acute or exudative component of the total disease being treated. As relapse is common, streptomycin is best used as an adjunct to other standard forms of treatment. The following types of disease are regarded as especially suitable for streptomycin therapy: (*a*) acute bronchopneumonic tuberculosis with severe symptoms; (*b*) acute bronchogenic spread, particularly when of such a nature that much needed collapse therapy is prevented; and (*c*) chronic disseminated finely nodular tuberculosis without large confluent areas of destructive disease.

Streptomycin has, after less than four years of clinical trial, demonstrated its capability of producing unprecedented therapeutic benefits to patients with some types of tuberculosis which were most refractory to all previous medical and surgical treatment.[1] However, clinicians experienced in the use of the drug have emphasized repeatedly that its greatest usefulness is in conjunction with rest in bed, collapse therapy and surgical treatment. The earliest clinical reports which appeared about three years ago and others which followed warned against overoptimism and emphasized the peculiar limitations of antibacterial therapy in the treatment of a disease such as chronic tuberculosis with a lifelong tendency to relapse.

The Trudeau Society Committee said further:

> As streptomycin can only be used for periods of two to four months in the therapy of this chronic disease and because of the emergence of resistant organisms, it is imperative that streptomycin be used for a period during the course of the disease when the greatest benefit can be expected. . . . The Committee looks with disfavor on the practice of utilizing streptomycin prior to institutional care or as an alternative to collapse therapy in the hope that such treatment might be avoided.

This indicates clearly the necessity of integrating other therapeutic procedures with the timely administration of streptomycin to carefully selected patients. Physicians who do not have access to other medical and surgical facilities for treating tuberculosis should hesitate to administer streptomycin, especially for the treatment of pulmonary tuberculosis.

The hazards of streptomycin toxicity have been reduced steadily during the past two years; first, as a result of regulating dosage, and, second, by chemical modification of streptomycin to dihydrostreptomycin. Although dihydrostreptomycin is but slightly different in chemical structure from the parent compound, it appears to be distinctly less toxic, while retaining the therapeutic potentialities of streptomycin. Dihydrostreptomycin is not devoid, however, of toxic potentialities and its use should be subjected to restrictions similar to those advocated for streptomycin.

The Mycobacterium tuberculosis is yielding to the ever increasing pressure of scientific achievement. Improved methods of detecting tuberculosis, such as mass roentgenography, and improved methods of offensive action, such as present day chemotherapy and surgical treatment, have been developed greatly in recent years. During the past four years greater progress has been made against this enemy on these fronts than during the preceding forty years.

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[1] Report to the Council on Pharmacy and Chemistry, J. A. M. A. **138**: 584-593 (Oct. 23) 1948.

Current Comment

STANDARDS FOR CHILDREN'S CONVALESCENT HOMES

The Sub-Committee of the Committee on Public Health of the New York Academy of Medicine,[1] following a study of conditions in convalescent homes, has reported a set of standards for grading and licensing. At present the requirements of licensing vary from state to state; none is up to standard in many of the phases considered in the report and official inspections of convalescent homes are usually limited to the physical plant. The committee believes the main purpose of children's convalescent homes to be provision of good institutional care in an environment conducive to the betterment of physical and mental health. The report considers both generalized and specialized homes in detail and also types of patients suitable for treatment in convalescent homes. Age limits considered acceptable range from 2 to 12 years. Administrators should give preference to patients recovering from acute illness and accept patients for long term care only when a favorable prognosis is indicated. The specific functions of personnel including physicians, nurses, social workers and other attendants, are presented. To reduce cost to the patients, volunteer aid is encouraged. Many such institutions do not make use of the excellent opportunity which they are given to inculcate habits of health in the children under their supervision. In view of the large number of such homes which spring up from time to time throughout the country without adequate personnel and medical supervision, the recommendations made by the committee deserve wide attention.

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[1] Standard for Convalescent Homes for Children, Prepared by a Sub-Committee of the Committee on Public Health Relations of the New York Academy of Medicine, J. Pediat. **33**: 251-259 (Aug.) 1948.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

March 21, 1949.

April Expected to be a Lively Congressional Month

With indications pointing to transmittal to Congress late in March of President Truman's national health message, Capitol Hill is preparing for an April launching of public hearings on compulsory health insurance and certain other less controversial measures pertaining to medical care and hospitalization.

Although the Senate will be the scene of most activity, the first hearings on a bill involving the medical sciences have been scheduled by the House. March 30 and 31 and April 1 have been set aside by the health subcommittee of the House Interstate and Foreign Commerce Committee to hear witnesses for and against the National Science Foundation bill. One of its provisions is for establishment of a special division for coordination of medical research conducted in the United States. The bill has been favorably reported by the Senate Labor and Public Welfare Committee.

The same committee has appointed a special subcommittee to handle pending legislation on federal subsidization of local public health units and expansion of the Hill-Burton hospital construction act. Senator Lister Hill (Democrat, Alabama) is chairman and other members are Senators Paul H. Douglas and Garrett L. Withers, Democrats, and Robert A. Taft and H. Alexander Smith, Republicans. It is considered likely that public hearings on these two bills will be held independently of hearings on general health legislation. The latter will be in charge of the standing subcommittee on health, headed by Senator James E. Murray (Democrat, Montana). On its calendar, besides the Murray-Wagner-Dingell bill will be the prospective omnibus health bills to be sponsored by Senators Taft and Smith and by Senator Hill. It is regarded almost as a certainty that the Murray subcommittee will open hearings some time in April on the Hill, Taft-Smith and Murray-Wagner-Dingell bills, the last named of which is still in process of being revised.

Arguments Heard for Increased Health Appropriations

Representatives of the American Cancer Society and the Medical College of the State of South Carolina were among those scheduled to be heard March 24-25 by a Senate appropriations subcommittee, in support of increased funds next year for the U. S. Public Health Service. Senator Taft announced he would go before the committee to urge approval of $2,000,000 for construction of a National Dental Research Institute building at Bethesda, Md. Senators Claude Pepper (Democrat, Florida) and John C. Stennis (Democrat, Mississippi) also planned to appear in support of increased funds for assistance to the states. Expansion of the federal mental health program was to be argued by Dr. Olin B. Chamberlain, of the Medical College of the State of South Carolina.

Christian Scientists Request Medical Care Concession

The House Ways and Means Committee, which is conducting hearings on social security extension that will continue for the remainder of March, has been asked to amend the pending bill H. R. 2892 so as to make Christian Science healing certifiable for medical care benefits which the bill proposes to extend to all needy persons. James Watt, manager of the Washington office of the Christian Science Committee on Publication, who laid the argument before the Ways and Means Committee, pointed out that two states—California and Illinois—recognize the principle.

"Should Christian Scientists, who themselves have contributed to the cause of old age assistance via social security and special taxes, be supplied with medical treatment but denied Christian Science treatment?" Mr. Watt asked. Christian Science treatment is a branch of the healing art. Christian Scientists have proved that reliance on material methods of healing is incompatible with reliance on divine aid through prayer and that it is not only incorrect but truly impossible under divine law to rely on both. This means that if they accept medical treatment, they are violating the very fundamentals of their religion. Although their method of treating the sick runs contrary to the prevailing systems of today, it is an integral part of their religion and they feel, in accordance with religious freedom, it is a constitutional right.

The proposed amendment is that "medical assistance," for purposes of the proposed law, be defined as meaning "medical or other legal remedial services for needy individuals."

Hearings on public assistance features of the proposed amendments, which began on February 28, were scheduled to be concluded March 22, following which the committee will take up extension of the law's provisions to the self-employed (including physicians, lawyers and other professional persons), farm and domestic labor and employees of hospitals and other nonprofit institutions.

Military Hospital Changes

Secretary of Defense James Forrestal, in late February, ordered the early closing of three Army and Navy general hospitals, reduction in status of three others and conversion of forty-eight station type hospitals to outpatient treatment centers. The changes, designed primarily to alleviate a serious shortage of medical and dental officers, had been recommended by the Hawley Board and subsequently indorsed by the Medical Advisory (Cooper) Committee. Also ordered effectuated by Secretary Forrestal on recommendation of the two advisory groups was joint staffing of medical facilities used jointly or in common by the armed services.

"Further, that in all geographical areas," said the Forrestal statement, "joint utilization be made of civilian consultants now employed by the medical services, and that professional services of outstanding specialists in the respective regular medical corps of the armed forces be more freely used in common."

General hospitals ordered decommissioned as soon as practicable are McCornack (Pasadena, Calif.) and the 22nd (Guam), both Army, and Pearl Harbor (Hawaii), Navy. The three reduced to station hospital status, all Army, are the 183rd at Anchorage, Alaska; Fort Totten, New York, and Tilton, at Camp Dix, N. J. The forty-eighth Army, Navy and Air Force station type hospitals which will be lowered to dispensary status are situated in eighteen states and the District of Columbia.

Record Figures on Streptomycin Production Revealed

On Dec. 31, 1948, the nation's stockpile of streptomycin was 6,100,000 Gm., the highest figure ever recorded, according to the Department of Commerce. Production during 1948 totaled 37,000,000 Gm., of which only 30 per cent was consumed by the domestic civilian market. Predicated on a reduction in price, wider application by the medical profession and availability of a less toxic product, the Department of Commerce anticipates a record demand and production of streptomycin in 1949. For penicillin, the Department's monthly (February) report on chemicals and drugs shows a production figure of 76,620 billion Oxford units in the first ten months of 1948. The top month was October, with 8,621 billion Oxford units.

Composite Committee Launches Antibrucellosis Campaign

At a special meeting in Washington on March 15 of representatives of public health, medical, livestock producer and certain other types of organizations, a decision was reached to form a permanent committee to advise Congress on control and eventual eradication of brucellosis. The American Medical Association, American Public Health Association, American Veterinary Medical Association and U. S. Public Health Service are among the score of organizations that will be invited to appoint representatives on the committee. Its temporary chairman is William Knox, of Fort Atkinson, Wis.

NATIONAL GRANGE ACTION ON HEALTH

REPORT OF ITS COMMITTEE ADOPTED AT ANNUAL SESSION

The members of the Interim Committee on Health have reviewed the National Grange Health Program of the past several years and believe it contains the basic recommendations for improving rural health. Looking ahead to next year on the basis of present developments and findings we recommend: (1) Continuation of the Interim Committee on Health; (2) a meeting of the members of the Interim Committee early in the year, possibly in conjunction with the American Medical Association Rural Health Conference, to map out activities for the year; (3) expansion of efforts to establish cooperative hospitals and clinics and to broaden prepayment plans to include surgical care; (4) increased attention to the hosptial construction program in the states so that rural communities needing hospitals will be able to receive federal aid and know how to get it before the program ends; (5) more research, education, and clinics to improve the greatly neglected mental health and dental condition of people, including cooperation of the Granges with the work of mental health associations; (6) efforts at all levels of government to stop pollution of streams and harbors.

Resolutions 18 by Carstensen; 47 by Holmes; 53 by Doss, and 85 by Fichter are covered by the following resolutions as approved by the committee.

Resolved:

1. That we reaffirm the resolutions on health adopted by the National Grange during its Annual Session in 1947.
2. We have studied the recommendations of the National Health Assembly held in Washington, D. C., May 1-4, 1948 and endorse the following:
   - (*a*) The program under the Hospital Survey and Construction Act should be continued and extended under a policy of flexibility permitting adaptation as may be required to meet changing needs. The present authorization of $75,000,000 per year should be increased in view of the urgent needs for the establishment of additional hospital beds and clinics and health centers in many areas of the country.
   - (*b*) The program under Public Law 725 and the hospital program of the Veterans Administration should be closely integrated in the interest of good planning.
   - (*c*) Hospitals within service areas should be functionally or organically associated with one another so that the patient may benefit from the resources of all.
   - (*d*) Governmental agencies having assumed responsibility for hospital care for patients and nongovernmental agencies purchasing hospital care should pay the established rate for such care.
   - (*e*) Hospitals, health departments and all other health agencies should seek every method for coordinating their efforts and integrating their functions in the interests of greater efficiency and service to the patient.
   - (*f*) Diagnostic clinics, outpatient services and home medical care and allied programs should be developed more extensively in extending health services for all.
   - (*g*) Hospitals should intensify and extend their basic activities in research and education.
   - (*h*) Preventive medical and dental service, and public health education should be carried out more widely as regular functions of the modern hospital.

     So far as possible, the general hospital should provide facilities for the care of all types of illness, with increased attention to the diagnosis and treatment of the patient with long term illness.
   - (*j*) The pressing need for additional facilities for the care of the mentally ill and persons with chronic diseases in general hospitals makes it necessary that special emphasis be given to this problem in the original state hospital plans and any revision of these plans under Public Law 725. A careful study to develop recommended standards is needed in this area for the guidance of state organizations under this Act.
   - (*k*) To develop and adequately meet good standards of patient care, it is recommended that all hospitals, nursing homes and other facilities for the care of the sick should meet at least minimum standards through the mechanism of licensure.
   - (*l*) The control of local facilities should be by the people in that locality on a cooperative or community basis, where possible with an elected board of directors, representative of lay and professional groups.
   - (*m*) Lay and professional organizations and governmental agencies should join in conducting a health education program and in developing plans for adequate facilities and health services which will include well coordinated and highly integrated networks of mobile units, clinics, community hospitals, district hospitals, regional hospitals and great medical centers.
3. That each state agency operating under the Hospital Survey and Construction Act consider carefully the advisability of organizing a rural hospital subcommittee, having representation from the major general farm organizations within the state and from the state land grant college, to advise the state concerning matters of importance in rural areas.
4. That adequate medical service for the prevention of illness, the care and relief of sickness and the promotion of a high level of physical and mental health should be available to all without regard to race, color, creed, residence or economic status.
5. That the principle of contributory health insurance should be the basic method of financing medical care for the large majority of the American people, in order to remove the burden of unpredictable sickness costs, abolish the economic carrier to adequate medical services and avoid the indignities of a means test.
6. That health insurance should be accompanied by such use of tax funds as may be required to:
   - (*a*) Furnish services which are public responsibilities.
   - (*b*) Supplement health insurance as necessary to provide adequate services for the whole population.
7. That voluntary prepayment group health plans organized on a community or collective bargaining level, embodying group practice and providing comprehensive service offer to their members the best modern medical care and are the best available means at this time of bringing about improved distribution of medical care in rural areas and should therefore be encouraged by every means.
8. That the people have the right to establish voluntary insurance plans on a cooperative basis and legal restrictions upon such right, now existing in a number of states, should be removed.
9. That high standards of service, efficient administration and reasonable costs require:
   - (*a*) Coordination of the services of physicians, hospitals and other health agencies in all phases of prevention, diagnosis and treatment.
   - (*b*) Efficient cooperation between the providers and the consumers of such services under the general principle that the responsibility for general policies, finances and administration should rest preponderantly on the lay group; for professional standards and procedures, upon the professional group; for mutual consultation on all matters of joint interest, upon both groups.
10. That the farm organizations, through the Conference Committee on Rural Health Services or other appropriate channels, explore the advisability of calling on the research and other resources of the U. S. Department of Agriculture and the land grant colleges in cooperation with health agencies to map out plans and programs for the continuous recruitment, training, distribution and financial support of doctors and other health workers in rural areas.

Compulsory Health Insurance

Whereas, Voluntary health plans are making rapid progress and these plans are generally run efficiently and to the satisfaction of members; therefore be it

Resolved, That people with comprehensive voluntary health service be exempted from any plan for compulsory health insurance should such health program be established.

Edward F. Holter.
George Sehlmeyer.
John F. Johnston.
Mrs. Zola Keith.
Mrs. Esther Seffren.
Mrs. Mabel Carr.

Coming Medical Meetings

Alabama, Medical Association of the State of, Montgomery, April 19-21. Dr. Douglas L. Cannon, 519 Dexter Ave., Montgomery 4, Secretary.

American Association for Thoracic Surgery, New Orleans, March 29-31. Dr. Brian Blades, George Washington University Hospital, Washington, D. C., Secretary.

American Association of Anatomists, Philadelphia, April 13-15. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

American Association of Genito-Urinary Surgeons, White Sulphur Springs, W. Va., Greenbrier Hotel, May 9-11. Dr. Norris J. Heckel, 122 S. Michigan Ave., Chicago 3, Secretary.

American Association of Industrial Physicians and Surgeons, Detroit, Book-Cadillac and Statler Hotels, April 5-9. Dr. Edward C. Holmblad, 28 E. Jackson Blvd., Chicago 4, Managing Director.

American Association of Pathologists and Bacteriologists, Boston, April 15-16. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Association on Mental Deficiency, New Orleans, Hotel Roosevelt, April 27-30. Dr. Neil A. Dayton, Box 51, Mansfield Depot, Conn., Secretary.

American Broncho-Esophagological Association, Chicago, Drake Hotel, April 18-19. Dr. Edwin N. Broyles, 1100 N. Charles St., Baltimore 1, Secretary.

American College of Allergists, Chicago, April 14-17. Dr. Fred W. Wittich, 423 LaSalle Medical Bldg., Minneapolis 2, Secretary.

American College of Physicians, New York, March 28-April 1. Dr. George Morris Piersol, 4200 Pine St., Philadelphia 4. Secretary General.

American Industrial Hygiene Association, Detroit, Book-Cadillac and Statler Hotels, April 5-7. Dr. Henry F. Smyth Jr., 4400 Fifth Ave., Pittsburgh 13, Executive Secretary.

American Laryngological Association, New York, May 16-17. Dr. Louis H. Clerf, 1530 Locust St., Philadelphia, Secretary

American Laryngological, Rhinological and Otological Society, Chicago, Drake Hotel, April 18-20. Dr. C. Stewart Nash, 277 Alexander St., Rochester 7, New York, Secretary.

American Orthopedic Association, Colorado Springs, May 18-21. Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secretary.

American Orthopsychiatric Association, Chicago, Stevens Hotel, April 4-6 Nina Ridenour, Ph.D., 25 W. 54th St., New York 19, Secretary.

American Otological Society, New York, May 18-19. Dr .Gordon D. Hoople, 713 E. Genesee St., Syracuse, N. Y., Secretary.

American Pediatric Society, Atlantic City, May 5-6. Dr. Henry G. Poncher, 1819 W. Polk St., Chicago 12, Secretary.

American Physiological Society, Detroit, April 19-22. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Executive Secretary.

American Society for Clinical Investigation, Atlantic City, May 2. Dr. Paul B. Beeson, Grady Hospital, Atlanta 3, Georgia, Secretary.

American Society for Experimental Pathology, Detroit, April 18-22. Dr. Frieda S. Robscheit-Robbins, 260 Crittenden Blvd., Rochester, N. Y., Secretary.

American Society for Pharmacology and Experimental Therapeutics, Detroit, April 18-22. Dr. Harvey B. Haag, Medical College of Virginia, Richmond 19, Secretary.

American Society for Research in Psychomatic Problems, Atlantic City, Chalfonte-Haddon Hall, April 30-May 1. Dr. Sydney G. Margolis, 714 Madison Ave., New York 24, Executive Secretary.

American Society of Biological Chemists, Detroit, April 17-22. Dr. Otto A. Bessey, 1853 W. Polk St., Chicago 12, Secretary.

American Surgical Association, St. Louis, April 20-22. Dr. Nathan Womack, University of Iowa, Iowa City, Secretary.

American Urological Association, Los Angeles, Hotel Biltmore, May 16-19. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secretary.

Arizona State Medical Association, Tucson, May 8-10. Dr. Frank J. Milloy, 15 E. Monroe St., Phoenix, Secretary.

Arkansas Medical Society, Little Rock, April 14-16. Dr. William R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Association of American Physicians, Atlantic City, May 3-4. Dr. Henry M. Thomas Jr., 1201 N. Calvert St., Baltimore 2, Secretary.

California Medical Association, Los Angeles, May 8-11. Dr. L. Henry Garland, 450 Sutter St., San Francisco 8, Secretary.

Connecticut State Medical Society, New Britain, State Teachers' College, May 3-5. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.

Federation of American Societies for Experimental Biology, Detroit, April 18-22. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Secretary.

Florida Medical Association, Belleair, April 10-13. Dr. Robert B. McIver, 111 W[illegible] Secretary.

Georgia, [illegible] vannah, Hotel De Soto, May 10-13. Dr. Ed[illegible] ee St., N.E., Atlanta, Secretary.

Hawaii Territorial Medical Association, Honolulu, May 5-8. Dr. Harry L. Arnold Jr., 510 S. Beretania St., Honolulu, Secretary.

Illinois State Medical Society, Chicago, Palmer House, May 16-18. Dr. Harold M. Camp, 224 S. Main St., Monmouth, Secretary.

Iowa State Medical Society, Des Moines, April 18-21. Dr. Allan B. Phillips, 406 Sixth Ave., Des Moines 9, Secretary.

Kansas Medical Society, Topeka, May 9-12. Dr. D. D. Vermillion, 512 New England Bldg., Topeka, Secretary.

Louisiana State Medical Society, New Orleans, May 5-7. Dr. P. T. Talbot, 1430 Tulane Avenue, New Orleans 13, Secretary.

Maryland, Medical and Chirurgical Faculty of the State of, Baltimore, April 26-27. Dr. George H. Yeager, 1211 Cathedral St., Baltimore 1, Secretary.

Medical Library Association, Galveston, Texas, April 10-14. Miss Mildred R. Crowe, Medical College of Alabama Library, Birmingham 5, Ala., Secretary.

Minnesota State Medical Association, St. Paul, Municipal Auditorium, May 9-11. Dr. B. B. Souster, 496 Lowry Medical Arts Bldg., St. Paul 2, Secretary.

Mississippi State Medical Association, Biloxi, May 10-12. Dr. T. M. Dye, Box 295, Clarksdale, Secretary.

Missouri State Medical Association, Kansas City, March 27-30. Mr. T. R. O'Brien, 634 N. Grand Blvd., St. Louis 3, Secretary.

National Tuberculosis Association, Detroit, May 2-6. Dr. H. Stuart Willis, 1790 Broadway, New York 19, Secretary.

Nebraska State Medical Association, Omaha, Hotel Paxton, May 2-5. Dr. R. B. Adams, 416 Federal Securities Building, Lincoln 8, Nebraska, Secretary.

New Jersey, Medical Society of, Atlantic City, Hotel Ambassador, April 25-28. Dr. Earl L. Wood, 315 W. State St., Trenton 8, Secretary.

New Mexico Medical Society, Roswell, May 5-7. Dr. H. L. January, 221 W. Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, Buffalo, Hotel Statler, May 2-6. Dr. Walter P. Anderton, 292 Madison Ave., New York 17, Secretary.

North Carolina, Medical Society of the State of, Pinehurst, The Carolina, May 9-11. Dr. Roscoe D. McMillan, P. O. Box 232, Red Springs, Secretary.

Ohio State Medical Association, Columbus, April 19-21. Mr. Charles S. Nelson, 79 E. State St., Columbus 15, Executive Secretary.

Oklahoma State Medical Association, Tulsa, Mayo Hotel, May 15-19. Mr. R. H. Graham, 210 Plaza Court Bldg., Oklahoma City, Secretary.

Rhode Island Medical Society, Providence, May 11-12. Dr. Morgan Cutts, 106 Francis St., Providence 3, Secretary.

Society of American Bacteriologists, Cincinnati, May 15-20. Dr. John Blair, Hospital For Joint Diseases, New York, Secretary.

Southern Branch, American Public Health Association, Dallas, Texas, Baker Hotel, April 14-16. Dr. George A. Denison, 600 S. Twentieth St., Birmingham, Ala., Secretary.

Southwest Allergy Forum, El Paso, Texas, Hotel Paso del Norte, April 4-5. Dr. O. E. Egbert, First National Bank Bldg., El Paso, Secretary.

Tennessee State Medical Association, Chattanooga, April 12-14. Dr. W. M. Hardy, 706 Church Street, Nashville 3, Secretary.

Texas, State Medical Association of, San Antonio, May 2-5. Dr. Harold Williams, 700 Guadalupe St., Austin, Secretary.

Western Association of Industrial Physicians and Surgeons, Los Angeles, Hotel Biltmore, May 7. Dr. Christopher Leggo, Crockett, Calif., Secretary.

Medical Legislation

STATE LEGISLATION

Arizona

Bills Introduced.—H. 181, to amend the law relating to public institutions, proposes that in any state or county institution supported wholly or in part by public funds in which hospital service is rendered or health treatments administered, licensed chiropractors shall be accorded equal rights and privileges with licensed practitioners of medicine and surgery and that the treatment of any patient therein who may so elect shall include without distinction, favor or discrimination the treatments, manipulations, adjustments and other services of a licensed chiropractor. Discrimination of the type prohibited by this proposal would constitute cause for the summary removal of any public officer or employee permitting or participating in such discrimination. H. 279 proposes the creation of a lien in favor of a hospital against any cause of action which an injured person might have, to the extent of hospital care and treatment furnished to such injured person. S. 100 proposes the enactment of a new osteopathic practice act. Licentiates under this act would be permitted, among other things, to perform the same duties and obligations and authorized to exercise all the same rights and privileges possessed by physicians and surgeons of other complete schools of medicine in the practice of their profession, except that no osteopathic physician or surgeon shall perform major surgery unless he has had two years of surgical training in a hospital approved for such training by the board or shall demonstrate to the board equivalent training, and the board shall certify in writing to the applicant his right to perform major surgery before engaging in any such duties.

Arkansas

Bill Enacted.—H. 23 has become act No. 131 of the Acts of 1919. It creates a financing board for Arkansas medical students and makes provisions for loans to medical students conditioned upon the recipient's residing in and practicing his profession in a community in Arkansas with a population of 2,000 or less for a period of five years following the completion of his internship.

California

Bills Introduced.—A. 2212 proposes a number of amendments to the **chiropractic practice act** among which is the following definition: "The practice of chiropractic shall consist of any or all acts essential to the application of chiropractic principles. Said acts are directed chiefly to the proposition of adjusting vertebral subluxations for the purpose of reducing obstructive pressure upon nerves where they lie in intervertebral foramina, or for reducing pressure upon the spinal cord." Chiropractic adjustment is defined as the voluntary and specific reestablishment of proper vertebral relationship for the purpose of correcting obstructive pressure upon spinal nerves or the spinal cord, and chiropractic utilities would be construed to mean any device, system, method or manner of procedure intended to facilitate the application of chiropractic principles in determining the presence or absence and correction of obstructive pressure on nervous tissue and/or the environmental stresses which initiate the adaptive changes causing such obstructive pressure, or the disclosure of any fact or facts consistent with the theory of chiropractic as defined in other provisions of the proposal. A. 2337, to amend the business and professions code, proposes the creation of a California **state board of psychologist examiners.** Certificates issued by this board would entitle a person to counsel, analyze and treat by methods usually employed by psychologists those patients who suffer from nervous and psychological conditions not definitely diagnosed as pathologic. A. 2789, to amend the labor code, proposes that the term physician shall include **drugless practitioners.**

Missouri

Bills Introduced.—H. 113, to amend the medical practice act, proposes to authorize the revocation of a license upon proof that a licentiate has accepted **in addition to his fee any rebate,** commission or any other type of payment, either directly or indirectly, in connection with the writing or filling of a prescription, except in those cases in which a licentiate compounds or dispenses his own prescriptions. H. 121 proposes to direct the curators of the University of Missouri to establish and conduct a **medical and surgical school** with a full and complete course of medical and surgical instruction.

New Jersey

Bill Introduced.—A. 317 proposes the creation of a **board of chiropractic examiners** and defines chiropractic as the theory and practice of nerve impulse control by vertebral adjustment by hand only for the purpose of removing a cause of disease. A licensee under this proposal would have the right in the examination of patients to use the neurocalometer, x-ray and other instruments necessary solely for the purpose of diagnosis or analysis.

New York

Bills Introduced.—A. 1871, to amend the public health law, proposes that every physician shall give notice to the health officer of the county, city, town or village wherein such person resides of every case of **cerebral palsy** under his care and of all new cases of cerebral palsy of which he learns. A. 2128 and S. 1929, to amend the education law, proposes the creation of a state **board of chiropractic examiners** and defines chiropractic as the science of locating and the removing of nerve interference in the human body, according to chiropractic principles, where such interference is the result of or caused by misalignment or subluxations of the vertebral column. A. 2233, to amend the education law, proposes regulations for the examining and licensing of persons desiring to practice **naturopathy** and proposes that a license to practice naturopathy shall not permit the holder thereof to administer internal toxic drugs or to perform major surgery. A. 2891 proposes to prohibit the sale of "**lithium sodium**" except on prescription by a person legally authorized to issue such prescription. A. 3030, to amend the education law, proposes to include within the definition of the practice of medicine the administration of anesthesia or **the practice of anesthesiology.** S. 1836, to amend the education law relating to the **definition of the practice of medicine**, proposes to include within such definition diagnosing, treating, operating or prescribing for mental or nervous disorders. S. 2023, to amend the education law, proposes to define the practice of medicine so as to include the **practice of naturopathy.** The proposal would also add a naturopath to the state board of medical examiners. Applicants for a license to practice naturopathy would be required to submit to an examination by the state board of medical examiners except that they would not be examined in major surgery and their license would not permit them to administer internal toxic drugs or to perform major surgery. S. 2045 proposes to create a lien in favor of every duly licensed physician to the extent of **emergency medical or surgical aid** or treatment rendered to persons injured as the result of negligence of any other person. S. 2196 proposes regulations for the licensing of unincorporated hospitals and **lying-in asylums.** S. 2402 proposes to authorize **hospitals supported in whole or in part by public funds** or by the solicitation of private subscriptions to which patients are admitted upon payment of a charge or fee or at which persons receive medical and/or surgical treatment upon payment of a charge or fee to employ physicians and/or surgeons under a contract or salary arrangement for the medical diagnosis and/or treatment of patients only when such diagnosis and/or treatment is a public charge. In all other cases such medical diagnosis and/or treatment shall be rendered to patients in such hospital independently of other hospital charges and under contractual relationship between the patient and the physician.

North Dakota

Bill Enacted.—S. 148 was approved Feb. 26, 1949. It amends the traffic law relating to persons operating motor vehicles while under the influence of **intoxicating liquor** by setting forth classifications of percentages established as the result of chemical tests of the defendant's blood and permits the results of such chemical tests to be admitted in evidence. No defendant, however, shall be required to submit to any chemical test without his consent.

Oklahoma

Bill Introduced.—S. 188 proposes the creation of a **lien in favor of hospitals** against cause of actions accruing to patients, to the extent of the hospital care furnished to such person. The lien created by this proposal would extend also to physicians for medical services rendered.

Oregon

Bill Introduced.—S. 338 proposes that no person shall furnish any **dangerous drug** except upon the prescription of a physician, dentist or veterinarian. "Dangerous drug" is defined to include hypnotic drug (acetylurea derivatives, barbituric acid or malonylurea derivatives, chloral, paraldehyde, phenylhydantoin derivatives), aminopyrine, amphetamine, cinchophen, diethyl-stilbestrol, ergot, oils of croton, rue, savin or tansy, sulfanilamide, extracts of glandular preparations, phenol and penicillin.

Pennsylvania

Bills Introduced.—H. 412 proposes amendments to the workmen's compensation act which would result in the enactment of an **occupational disease act.** H. 450 and H. 451 propose that medical service plan corporations shall include the services of **doctors of osteopathy.** H. 466 proposes the enactment of a **permissive sterilization act.** H. 502 proposes the **creation of a state laboratory** for the purpose of rendering assistance to the different coroners throughout the commonwealth in their investigation of all cases where death is sudden or violent and is of a suspicious nature and character to ascertain whether death was due to other than natural causes and in rendering assistance in all cases where autopsies are necessary and for the purpose of rendering toxicologic examinations of foodstuffs for the department of health in connection with outbreaks of gastroenteritis due to the ingestion of contaminated food. The chief of such laboratory would be required to be a legally qualified doctor of medicine duly trained to do pathologic work. H. 529, to amend the law relating to the treatment of **mental diseases and epileptics** in state hospitals, proposes that the word "qualified physician" shall mean a person licensed to practice osteopathy. H. 626 proposes to require every physician who treats or examines any blind person or persons with **impaired vision** approximating blindness to make a written report thereof to the department of welfare. H. 808 proposes the creation of a **lien in favor of hospitals** against causes of action possessed by patients therein, to the extent of services furnished to such patient by the hospital. S. 278 proposes to authorize the department of health to license institutions desiring to obtain from any pound in the jurisdiction **live dogs and cats** for the purpose of carrying on scientific and educational research activities. S. 279 would require all persons desiring to **practice osteopathy** in the state to undergo the same examination as that taken by physicians and surgeons and would repeal the existing osteopathic act except so far as it applied to persons already licensed thereunder. S. 280 proposes to increase the size of the state board of medical education and licensure by the **addition of an osteopathic member** and proposes that the powers and duties of the state board of osteopathic examiners and the osteopathic surgeons' examining board shall be taken over by the state board of medical education and licensure. S. 345 proposes to make it a misdemeanor for any person to experiment or operate in any manner whatsoever upon any **living dog or cat** for any purpose other than healing or curing such dog or cat. S. 385 proposes the creation of a **lien in favor of hospitals** on the proceeds of insurance policies for services rendered to persons injured in accidents entitled to payments from such proceeds.

Vermont

Bill Introduced.—H. 183 proposes that the medical practice act shall not prevent a duly licensed physician or surgeon of an adjoining state or of the Dominion of Canada from **coming into a town bordering thereon in this state** for the purpose of treating a sick or disabled person therein.

Washington

Bills Introduced.—H. 224 proposes the creation of a **medical disciplinary board** to hear and determine charges of unprofessional conduct against persons licensed to practice medicine and surgery. H. 252 proposes regulations for the licensing of hospitals and related institutions, and the appointment of a **state hospital council.** The proposal is broad enough to cover private as well as state and government operated institutions within the state. H. 258 proposes that any physician or surgeon performing an operation **shall make a written diagnosis** of the patient's condition and set forth therein the purpose of said operation stating what organs, glands or tissues are to be removed. A copy of this diagnosis shall be given to the patient or to his or her relative or designated agent and a copy shall be mailed or delivered to the health department. All excised parts, glands or tissue must be kept in a carefully labeled receptacle and properly preserved for a period of ten days after removal and must be delivered on written demand from the patient, relative or agent to whomsoever they designate. The proposal further makes it a misdemeanor for any physician or surgeon to perform an unnecessary operation, which is defined to mean a surgical operation performed in which no pathology was found to exist in parts removed or a surgical operation performed in pursuance to a wrong diagnosis or a surgical operation from which the patient could not reasonably be expected to receive the relief desired and as diagnosed. H. 261 proposes that the University of Washington School of Medicine be required to teach **courses in naturopathy, osteopathy and surgery, chiropractic, sanipractic, physio-medicine and surgery** and any other branch of the healing arts that is incorporated or the members of which are licensed to practice their respective professions in the state of Washington. H. 283 proposes to authorize the director of licenses to appoint a committee of examiners for **the practice of massotherapy,** which is defined as the method, art or science of treating the human body for hygienic or remedial purposes to maintain health and to establish a normal condition of the body and shall include all massage manipulations, passive and active remedial gymnastics and relaxing movements and manipulations with the hands or with any other agency or instrumentality designed to accomplish massage manipulations or gymnastics, or by mechanical gymnastics to promote physiologic action to bring about a normal condition of health and restore bodily functions to a normal condition. Licentiates would be permitted also to use electrotherapy, hydrotherapy and physical therapy as defined by the proposal. H. 304 proposes to require every hospital on demand to **render first aid** to any person requiring emergency assistance and would make the hospital and any physician or agent of the hospital liable for damages caused by the refusal so to do. H. 329 proposes to make it an act of **unprofessional conduct** for any person licensed to practice medicine and surgery, drugless treatment in any form or dentistry to accept any rebate, refund, commission or unearned discount, whether in the form of money or otherwise, as compensation for referring patients to any person, firm, corporation or association. H. 363, to **amend the medical practice act,** proposes that applicants must have graduated from a medical school having standards no less than the standards of the Medical School of the University of Washington. H. 399 proposes the establishment of **cancer clinics** at various places throughout the state and authorizes the state director of health to appoint physicians to serve at such clinics on such terms and compensation as the state director of health shall determine. H. 493 proposes the enactment of a hospital survey and construction act for the purpose of making an **inventory of existing hospitals,** a survey of additional needed facilities and the development and administration of a construction program for such needed facilities. The Director of the State Department of Health is designated as the agent to apply for and receive federal funds to assist the state in its project and is also directed to appoint an Advisory Hospital Council to advise and consult with the department of health in carrying out the administration of the act. H. 550 proposes to permit the board of medical examiners to accept the certificates of the **National Board of Medical Examiners** from applicants for licensure to practice medicine in the state. S. 233 proposes to require state boards and agencies to accept the services of **licensed optometrists** for any service covered by their licenses on the same basis and on a parity with any other person authorized by law to render similar professional service.

GOVERNMENT SERVICES

ARMY

THE ARMY NEEDS SPECIALISTS

Specialists to fulfil current requirements of the Army Medical Department are needed in all fields. In the fields of allergy, cardiology, gastroenterology, pulmonary diseases and neurosurgery the Army does not have a board-certified specialist, although officers in each of these fields are in training for certification by these boards. Commissions in the Medical Corps, both regular and reserve up to and including the rank of lieutenant colonel, are available in these fields for qualified civilian physicians depending on length of experience. As of January 25, the Medical Department had 143 regular officers and 10 civilian component officers on active duty who were certified by American specialty boards. This is an increase of 51 from the date of the last published survey, Sept. 1, 1947.

THE HOSPITAL AT SAULT SAINTE MARIE

Since September 1944, the former army station hospital at Sault Sainte Marie, Mich., has been in use as a state mental institution. As the lease held by the state expires next September, a conference was held February 8, with the Assistant Secretary of the Army, Gordon Gray, the Governor of Michigan, G. Mennen Williams, Senator Homer Ferguson, Representative Charles E. Potter, several Michigan state legislators and other representatives of the State of Michigan. The Assistant Secretary of the Army assured the Michigan delegation that he will do what he can under established budgetary procedures to put the Army in a position to construct a permanent installation at Sault Sainte Marie. This, he believed, is the solution to the long range problem, but funds are not now available for such construction. The State of Michigan needs to retain the hospital for use by its mental patients, at least temporarily.

DISTRIBUTION OF THE INDEX-CATALOGUE

The Army Medical Library reports that the distribution of the five volumes of the Index-Catalogue of the Surgeon-General's Office published during the war years has been completed, except for a few libraries in Germany, mostly in the Russian Zone, and a few other libraries. Remarkably few sets of the Index-Catalogue were completely destroyed during the war. Lost entirely were those in the Philippine Islands, Torino, Karlsruhe, Kiel, Münster, Munich and some of those in Berlin; partially lost were the sets in Amsterdam, Freiburg im Breisgau and some other libraries.

NURSE CORPS CELEBRATES FORTY-EIGHTH ANNIVERSARY

On February 2 the Army Nurse Corps celebrated its forty-eighth anniversary as part of the United States Army.

The Surgeon General, Major General Raymond W. Bliss, said that with the passing of the years, each of the ten surgeons general who have served the Medical Department since the Army Nurse Corps was established has found increasing value in the contributions made by women in the Medical Department. "First, we had only nurses, then we included dietitians, then physical therapists and now occupational therapists. Ours is a medical team, but because of the sincere efforts of the Army Nurse Corps through the years, we are including more and more women in our fold."

General Lucias D. Clay, Commander in Chief, European Command, said, "Army nurses in Normandy went in directly behind the first wave of assault troops to land in France. They waded ashore June 6, 1944, a few hours after the invasion, and set up dressing stations in pup tents on the beach where they ministered to the wounded. The world remembers the valor and courage of the Army nurses who served on Bataan and Corregidor."

General Omar N. Bradley, Chief of Staff, said, "In our effort to make the Army a better place to live and work, with greater understanding in its relationships, with a more selfless devotion to our duty and our fellow soldiers, we can take as an example the accomplishments of the nurses who have served with the Army throughout the world, in peace and war, for so many years."

General Douglas MacArthur, Commander in Chief of the Far East Command, from Tokyo sent a message saying, "I join with all ranks of commands in grateful tribute to the 48 years of devoted national service the Army Nurse Corps has rendered in ministering to sick and wounded. In war and in peace—through the grim ordeal of battle and the lull which has followed—it has built a noble tradition of service, sacrifice and valor."

General Jacob L. Devers, Chief, Army Field Forces, said, "The thousands of World War II Army Nurses who served nobly with the Ground Force combat units overseas, enduring the hardships and dangers, . . . were a constant source of inspiration to the fighting men who knew that you were helping to give them the best medical care that this nation could provide."

INDEX COMMITTEE MEETING

The Committee of Consultants for the Study of Medical Indexing held its third meeting January 14, in the Library of Congress, Washington, D. C. The following working subcommittees were formed from the main committee: Need for Medical Indexes, Dr. Chauncey D. Leake, chairman; Use of Medical Indexes, Miss Janet Doe, chairman; Scope and Coverage of Medical Indexes, Dr. John F. Fulton, chairman, and Techniques in Indexing, Dr. Mortimer Taube, chairman. The Committee will hold its next meeting March 11.

ACCEPTED FOR ADVANCED TRAINING

The following Medical Corps officers have been accepted for advanced classes in civilian schools and hospitals indicated:

Name and Rank	Institution	Course
Frank A. Mantz, Major	Massachusetts General Hospital, Boston	Fellowship in pathology
Edwin J. Pulaski, Major	Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tenn.	Radioisotope technics
John W. Braasch, First Lieut.	Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tenn.	Radioisotope technics
Robert F. Newton, First Lieut.	Hartford Hospital, Hartford, Conn.	Residency in pediatrics
John M. Cahill, First Lieut.	Boston City Hospital, Boston	Residency in surgery
James B. Elkins, First Lieut.	Alexandria Hospital, Alexandria, Va.	Assistant resident in obstetrics
Jose Cerra-Quinones, First Lieut.	Graduate School of Medicine, University of Pennsylvania, Philadelphia	Postgraduate course in obstetrics and gynecology
Alan I. Blumberg, First Lieut.	Jewish Hospital, Philadelphia	Residency in pathology
Robert G. Gildersleeve, First Lieut.	South Baltimore General Hospital, Baltimore	Residency in general surgery
Donald J. Caseley, First Lieut.	Indiana University Medical Center, Indianapolis	Intern training
John F. McGarry, First Lieut.	Ball Memorial Hospital, Muncie, Ind.	Intern training
Anthony J. Puglisi, First Lieut.	Grasslands Hospital, Valhalla, N. Y.	Intern training

NAVY

EXAMINATIONS FOR APPOINTMENT IN MEDICAL CORPS

Examinations for the selection of candidates for appointment to the grade of lieutenant (junior grade) in the Medical Corps of the Navy will be conducted at all Naval hospitals in the United States, April 4-8, 1949. Graduates of approved medical schools in the United States or Canada who have completed intern training in accredited hospitals or who will complete such training within four months of the date of the examination, and who are physically and otherwise qualified, may be examined for appointment if less than 32 years of age. They will be required to appear before boards of medical examiners and supervisory Naval examining boards at the Naval hospital nearest their residence. Following approval by the President of the United States and confirmation by the Senate, selected candidates will be issued appointment and orders assigning them to active duty. As a result of the authorized additional compensation of $100 a month for medical officers, a lieutenant (junior grade) in the Navy Medical Corps receives pay and allowances totaling $5,011 a year if married and $4,575.50 if without dependents. Information concerning the procedure of application may be obtained from the nearest Naval Officers Procurement Office or from the Bureau of Medicine and Surgery, Navy Department, Washington 25, D. C. (Attn: Code-3424).

FIRST ACTIVE DUTY AS INTERNS

The following lieutenants (jg) in the Medical Corps Reserve have been ordered to their first active duty as interns in civilian institutions under the Navy's graduate medical training program:

Name	Residence	Institution
Barth, Robert L.	New Washington, Ohio	Indianapolis General Hospital, Indianapolis
Bartzen, Peter J.	Milwaukee	Milwaukee County Hospital
Beaven, William E.	Rochester, N. Y.	Union Memorial Hospital, Baltimore
Berry, Paul T.	St. Louis	St. Luke's Hospital, St. Louis
Foster, Claude F., Jr.	Oklahoma City	St. Anthony Hospital, Oklahoma City
Herring, Edwin B.	Dundee, Miss.	John Gaston Hospital, Memphis, Tenn.
Maxson, Eugene S.	Alhambra, Calif.	Glendale Sanitarium and Hospital, Glendale, Calif.
McKelvey, Joseph S.	Bellaire, Ohio	University of Pittsburgh Medical Center
McKinney, James E.	Atlanta, Ga.	Charity Hospital of Louisiana, New Orleans
Montgomery, Wayne S.	Detroit	Harper Hospital, Detroit
Rholl, Arnold O.	Minneapolis	Northwestern Hospital, Minneapolis
Rogers, Malcolm E.	Gilbertown, Ala.	Naval Hospital, Portsmouth, Va.
Simpson, Arthur M.	Toledo, Ohio	Wesley Memorial Hospital, Chicago
Stone, Bernard B.	Revere, Mass.	Worcester City Hospital, Worcester, Mass.
Taylor, Clayton B.	Madera, Calif.	General Hospital of Fresno County, Fresno, Calif.
Walzer, Mackenzie	Darien, Conn.	Massachusetts General Hospital, Boston
Wilkinson, Ernest L.		Johns Hopkins Hospital, Baltimore

MEDICAL ASPECTS OF SPECIAL WEAPONS AND RADIOACTIVE ISOTOPES

One hundred and seventy-five Naval reserve medical officers comprised the second class for the five day course in medical aspects of special weapons and radioactive isotopes, which convened at the Naval Medical School, Bethesda, Md., February 14. In addition to speakers from the Naval Medical Center, the instructors comprised representatives from the Atomic Energy Commission, U. S. Public Health Service and the following civilian scientists: George Gamow, Howard Andrews, J. B. Trunnell, C. F. Geschickter, Herbert Friedman, L. D. Fothergill, Francis Gordon, Leslie Chambers, Philip H. Abelson, Shields Warren and William F. Sullivan.

POSTGRADUATE INSTRUCTION

The following medical officers have been nominated for postgraduate instruction in residencies at the institutions indicated: Comdr. Earl J. Palmberg of Red Oak, Iowa, ophthalmology, Naval Hospital, San Diego, Calif.; Lieutenants (jg) Edward Martin Jr. of Boston, anesthesiology, Naval Hospital, Chelsea, Mass.; Anthony P. Prezyna of Lackawanna, N. Y., pathology, Naval Hospital, Bethesda, Md., and Charles E. Rogers of Milwaukee, surgery, Naval Hospital, St. Albans, Long Island, New York.

Comdr. David Singer of San Diego, Calif., and Lieut. Edward D'Orazio of Steubenville, Ohio, both reserve officers, have been voluntarily recalled to active duty to receive postgraduate instruction under the Graduate Medical Training Program as residents in internal medicine and pediatrics at the Naval Hospital, Long Beach, Calif., and the Naval Hospital, Chelsea, Mass., respectively.

NEW REGULAR OFFICERS

The following medical officers have transferred from an active reserve status to the Medical Corps of the Regular Navy: Commander Charles A. Castle of Watertown, South Dakota; Commander Berger Thomas of Columbus, Ohio; Lieutenants (jg) Benjamin F. Burns of Pasadena, Calif.; Harold W. Garvin of Mascoutah, Ill.; Albert M. Jenkins of Norwood, Ohio, and Stuart D. Kustermann of Minneapolis.

RESERVE OFFICERS ON ACTIVE DUTY

The following reserve medical officers have voluntarily been recalled to active duty: Capt. Edwin C. Swift of Jacksonville, Fla.; Comdr. Wilbur W. Westfall of Somerset, Pa., and Lieut. Comdr. Meshel Rice of Detroit.

Comdr. Jacob G. Hebble and Lieut. Bruce H. Smith Jr. have been nominated for courses in postgraduate instruction at the Illinois Neuro-Psychiatric Institute, Chicago, and the New England Deaconess Hospital, Boston, respectively.

VETERANS ADMINISTRATION

MILLIONS OF PRESCRIPTIONS

During 1948, some 4,000,000 prescriptions for veteran-patients were filled by privately owned pharmacies and those operated by the Veterans Administration. According to E. Burns Geiger, chief, pharmacy division of the Veterans Administration, about 500,000 of these prescriptions were filled by 25,000 privately operated pharmacies throughout the country which take part in the Veterans Administration home town pharmacy program, while the remaining 3,500,000 prescriptions were filled by 333 pharmacists in Veterans Administration hospitals, homes and regional offices. Private pharmacists have been authorized under agreement between the Veterans Administration and the state pharmaceutic associations in forty-six states, the District of Columbia and Hawaii, to fill prescriptions at government expense for veterans undergoing outpatient treatment for a service-connected ailment.

PERSONAL

The new director of the Veterans Administration Library Service is Foster E. Mohrhardt, formerly associate professor of library science at Columbia University and librarian at Washington and Lee University. Mr. Mohrhardt, a native of Michigan, succeeds Francis R. St. John, who resigned December 17 to become affiliated with the Brooklyn public library.

Dr. James S. Cullyford, chief of medical services in the regional office in Denver, was recently decorated by the Netherlands Government for outstanding service to the Dutch people held in German concentration camps during the war. Dr. Cullyford served with the Twelfth Army Group in Europe after D-Day as public health officer in the civil affairs section and was responsible for the medical care of inmates in certain prison camps.

PUBLIC HEALTH SERVICE

CONFERENCE ON TUBERCULIN AND HISTOPLASMIN SENSITIVITY

A conference was held February 2-3 in Washington, D. C., at the invitation of the Division of Tuberculosis of the Public Health Service, to consider the prevalence of tuberculin and histoplasmin skin sensitivity among young adults. In addition to the staff of the Field Studies Branch of the Division of Tuberculosis, the following persons attended the conference: Drs. Ralph I. Canuteson, University of Kansas; L. M. C. Luykx, New York University; John A. Prior, Ohio State University; Comdr. R. O. Canada, U. S. N., Washington, D. C.; Drs. G. A. Cronk, Syracuse University; J. A. Meyers, University of Minnesota; Max L. Durfee, Miami University, Oxford, Ohio; W. G. Beadenkopf, University of Chicago, and Capt. Samuel Saslaw, M. C. A. U. S.

The conference indorsed the proposal of the chief of the branch, Dr. Carroll E. Palmer, that steps be taken to organize a broad study of the distribution of tuberculin and histoplasmin sensitivity among young adults in the United States through skin tests and roentgen examinations of university and college students.

DR. HARRISON TO RETIRE

Dr. Walter T. Harrison, for many years a commissioned officer in the Public Health Service, is now on terminal leave and will retire from the service on July 1. Dr. Harrison was first commissioned in the U. S. Public Health Service in 1916. Among his many important assignments was service at the Hygienic Laboratory, Washington, D. C., the predecessor of the National Institutes of Health, where he carried on research on diphtheria immunization. His last assignment has been medical director for Region 10, which includes Arizona, California, Nevada, Oregon, Washington, Alaska and Hawaii. Dr. Harrison also was a member of the Permanent Commission on Biological Standardization of the health organization of the League of Nations. In 1937 he lectured at Vanderbilt University School of Medicine, Nashville, Tenn., on immunology and the use of biologic products.

NEW SECTION ON EXPERIMENTAL THERAPEUTICS

Surgeon General Scheele has announced the appointment of Dr. Harry Eagle as chief of the new Experimental Therapeutic Section in the National Institutes of Health; other personnel in the new section include many of the research men who were associated with Dr. Eagle when he was director of the Laboratory of Experimental Therapeutics, a joint project of the Public Health Service and the Johns Hopkins School of Hygiene. In order to devote full time to this field, Dr. Eagle will relinquish his position as scientific director of the National Cancer Institute, where he has been in charge of research activities since July 1947.

MISCELLANEOUS

SEMINAR ON DISPOSAL OF RADIOACTIVE WASTES

A two day seminar on disposal of radioactive wastes sponsored by the United States Atomic Energy Commission was held in Washington, D. C., January 24-25. In discussing health problems in atomic energy activities, Dr. Shields Warren, director, division of biology and medicine of the Atomic Energy Commission, said it is possible to detect radioactivity at levels far below those dangerous to human beings and that the problems dealt with are not unknown hazards. The prime objective of the radioactive waste disposal program is to prevent radioactive materials from being absorbed by human bodies, and, to the best of his knowledge, the precautions being used at atomic energy sites are giving adequate protection.

Dr. Austin Brues, director of biology and medicine at the Argonne National Laboratory, Chicago, said that in the matter of external total body radiation, the standardized tolerance level is 0.1 r per day. This applies to persons exposed to radiation continuously, day in and day out. Persons who do not receive continuous exposure can tolerate single doses of radiation of many roentgens without detectable damage, and for certain pathologic conditions radiation treatment requires doses far beyond any that can be tolerated normally.

The director of engineering, Roger S. Warner, and Arthur V. Peterson of the production division of the Atomic Energy Commission said that the low permissible limits for radioactivity discharged into soil, air or water are usually met through technics of dispersion and dilution and use of normal industrial decontaminating devices, such as filters and scrubbers. The high level wastes produced at the great atomic energy production centers are held at the site until the radioactivity decays, and this material is held indefinitely or is reprocessed for its highly valuable components.

The director of the Health Physics Division, Oak Ridge, Tenn., National Laboratory, Dr. Karl Z. Morgan, said that after the radioactive wastes from the plants at Oak Ridge were discharged into the Clinch River the level of radioactivity in the river was considerably less than that in many of the mineral waters widely used in the United States for drinking purposes, and that the amount of radioactivity contributed from all Oak Ridge operations to the atmosphere of the neighboring area is less than the added cosmic radiation exposure one receives in going from sea level to Denver at 5,000 feet elevation.

Dr. C. C. Ruchhoft of the United States Public Health Service discussed the possibilities of developing concentration methods for radioactive liquid waste treatment by biologic processes similar to those now used in sewage treatment, which possibilities, he said, appear promising.

Dr. Abel Wolman, director, Department of Sanitary Engineering, Johns Hopkins University, Baltimore, predicted that the sanitary engineer and the water and sewage plant operators in the future will take on the function of protecting the water supply and the atmosphere of communities against the hazards of contamination by radioactive wastes, just as they now protect communities against air and water pollution. He said that it was necessary for sanitarians to begin at once to learn the new words associated with radioactive wastes and to become acquainted with the instruments used to measure the degrees of radioactivity.

LAWRENCE HAFSTAD MADE DIRECTOR OF REACTOR DEVELOPMENT DIVISION

The U. S. Atomic Energy Commission has appointed Dr. Lawrence R. Hafstad as Director of the Reactor Development Division. It is principally through the development of reactors that the commission expects in coming years to develop a means for utilizing the energy released by nuclear fission.

Dr. Hafstad has been on leave of absence from Johns Hopkins University, where he is Director of Research of the Applied Physics Laboratory at Silver Spring, Md., in which laboratory he helped perform much of the work leading to development of the proximity fuse. His duties with the Atomic Energy Commission include responsibility to General Manager Carroll L. Wilson for the activities of the Chicago Operations Office, which gives administrative support to the Argonne National Laboratory, the center of reactor development, and the program at Knolls Atomic Power Laboratory at Schenectady, N. Y.

Dr. Hafstad was born in Minneapolis and was graduated from the University of Minnesota in 1926; since July 1, 1948, he has been executive secretary of the Research and Development Board, in which position his successor will be Robert F. Rinehart, since July 1, 1948 director of the Board's planning division.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Public Lectures at Stanford.—Stanford University School of Medicine is presenting its sixty-seventh course of Popular Medical Lectures by members of its faculty at Lane Hall in San Francisco, Wednesday evenings at 8 p. m.:

March 30, Roy B. Cohn and Herbert N. Hultgren, Diagnosis and Treatment of Congenital Heart Disease.
April 6, Charles E. McLennan, Cancer of the Uterus.
April 20, William McD. Hammon, Poliomyelitis: Means of Spread and Control.
April 27, Alfred E. Maumenee Jr., San Francisco, Prevention and Treatment of Blindness in Childhood.

Dr. John A. Anderson to Head Pediatric Department.—Dr. John A. Anderson, professor and chairman of the department of pediatrics and communicable diseases at the University of Utah College of Medicine, Salt Lake City, will join the faculty of the Stanford University School of Medicine, Stanford University-San Francisco, September 1, succeeding Dr. Harold K. Faber as professor and head of the pediatrics department. Dr. Faber becomes professor emeritus in September.. Dr. Anderson received his M.D. in 1933 and his Ph.D. in 1940 at the University of Minnesota. He interned at Minneapolis General Hospital 1933-1934 and the following year was a research assistant in pediatrics. After two years as a Commonwealth Club Fellow of the Child Research Council in Denver, he rejoined the Minnesota Medical School faculty in 1937; he accepted the pediatrics post at Utah in 1943.

COLORADO

Institute on Epilepsy.—The First Western Institute on Epilepsy will meet at the University of Colorado Medical Center, Denver, May 16-18. Members of the medical profession, social workers, psychologists and interested laymen are invited. Lectures, clinics and round table discussions will be held. Dr. Jerry Price of the Neurological Institute, New York, will be the keynote speaker. Institute fees will be $5. For information address the Director, Epilepsy Service, University of Colorado Medical Center, Denver.

Fellowship in Industrial Medicine.—The University of Colorado Medical Center, Denver, is offering a three year fellowship in industrial medicine. The course will give advanced training in industrial medicine leading to the degree Doctor of Industrial Medicine. The stipends will be $1,800 and $2,400 for the first and second years respectively. Appointments are made January 1 and July 1. This course is approved by the Veterans Administration for candidates who are eligible under the G. I. Bill of Rights. The first two years will consist of didactic work. Time and facilities for research will be provided, and a thesis will be required. The third year will be spent in training in industry under supervision. The stipend for this year will be announced later. Requirements include graduation from an approved medical school, at least one year of internship training, and preferably at least one year of residency training in one of the specialties or one or more years of practice of medicine. For further information write Frank Princi, M.D., Director, Division of Industrial Medicine, University of Colorado Medical Center, Denver.

FLORIDA

Annual State Medical Meeting.—The Florida Medical Association will hold its annual meeting at Belleair with headquarters at the Belleview-Biltmore Hotel April 11-13, under the presidency of Dr. Joseph S. Stewart, Miami. Visiting speakers will be:

Clarence G. Bandler, New York, Hematuria; Its Clinical Significance.
Michael L. Mason, Chicago, Early Closure of Burned Areas.
Frederick H. Falls, Chicago, Management of Eclamptogenic Toxemia.
Cushman D. Haagensen, New York, Diagnosis of Cancer of the Breast.

The Women's Auxiliary to the state association and a number of specialty groups will also meet at this time.

GEORGIA

Course for General Practitioners.—The University of Georgia School of Medicine, Augusta, in cooperation with the Medical Association of Georgia will give a postgraduate course in medicine and surgery for general practitioners April 11-15 designed to present current ideas concerning the diagnostic and therapeutic problems of general practice. The enrolment is limited, and the registration fee of $15 includes the cost of five luncheons. For information address Director of Postgraduate Education, University of Georgia School of Medicine, University Place, Augusta.

ILLINOIS

Postgraduate Conferences.—The Postgraduate Education Committee of the Illinois State Medical Society has arranged a postgraduate conference for the Second Councilor District March 31 at the Kaskaskia Hotel, La Salle. The district includes Bureau, La Salle, Lee, Livingston, Marshall, Putnam, Whiteside and Woodford counties. On the program, beginning at 1:30 p. m., the following Chicago physicians will speak:

Arkell M. Vaughn, Vagotomy in Treatment of Gastro-Intestinal Ulceration.
Harry M. Hedge, Birthmarks.
Henry G. Poncher, Practical Aspects of Pediatric Therapy.
Chauncey C. Maher, Combination of Gallbladder Disease and Coronary Disease.
Frederick H. Falls, Early Diagnosis of Carcinoma of the Uterus.

There will be a round table discussion from 5 to 5:30 p. m. The dinner speaker will be Dr. Percy E. Hopkins, Chicago, president of the Illinois State Medical Society, on "Voluntary Prepayment Medical and Surgical Care."——A postgraduate conference for the Tenth Councilor District will be held at the Elks Club Du Quoin, April 7, with the following participants:

Kilian F. Fritsch, East St. Louis, Rehabilitation of Victims of Poliomyelitis.
Edward H. Reinhard, St. Louis, Diagnosis and Treatment of Hemorrhagic Disorders.
G. Lynn Krause, St. Louis, Diagnosis and Surgical Treatment of Polypi in the Large Intestine in Infants and Children.
Willard O. Thompson, Chicago, Diseases of the Adrenals.
Harry M. Hedge, Chicago, Birthmarks.

In the evening, Dr. Walter Stevenson, Quincy, will discuss "Crossed Eyes—A Medical and Economic Problem." The Tenth Councilor District comprises Alexander, Jackson, Monroe, Perry, Pulaski, Randolph, St. Clair, Union and Washington counties.

Chicago

Medical Genetics Lectures.—Eight medical lectures on subjects pertaining to human genetics will be given Tuesday evenings at 8 p. m. in Room M-137, Albert Merritt Billings Hospital, from March 29 to May 17. The lectures, open to any one interested, will be delivered with the exception of that of May 10, by Herley H. Strandskov, Ph.D., associate professor of zoology, at the University of Chicago. The schedule is as follows:

March 29, Human Chromosomes; General Genetic Principles; M-N Blood Types; Sickle Cell Anemia.
April 5, Genetics of the A-B Blood Groups.
April 12, Recent Views on the Genetics of the Rh-Hr Blood Factors.
April 19, Role of Heredity in the Etiology of Cancer.
April 26, Genetics and Variations in Mental Characteristics.
May 3, Genetics of Human Populations.
May 10, Robert D. Boche, Ph.D., Chicago, Radiation and Genetics.
May 17, Genetics and Medicolegal Problems.

Northwestern's Faculty and Alumni Reunion.—The annual medical faculty-alumni reunion dinner of Northwestern University Medical School will be held at 6 p. m. May 14, in the Lake Shore Club. Dr. J. Roscoe Miller, retiring dean of the school who will become president of the university in July, will be the guest of honor. The principal speaker will be Dr. Frederick W. Merrifield, a member of the surgery faculties of the medical and dental schools. Representatives of the five-year medical classes of 1904, 1909, 1914, 1919, 1924, 1929, 1934, 1939 and 1944 will have special tables at the dinner, and members of the classes of 1894 and 1899 and this year's graduating class will be guests of the medical alumni association. Reservations may be made through the office of the association, Room 796, Montgomery Ward Building, 303 E. Chicago Avenue, Chicago.

INDIANA

Courses in Roentgenology and Micology.—A course in basic roentgenographic procedure for technicians attached to laboratories of physicians and hospitals will be offered by Purdue University, Lafayette, in cooperation with the General Electric X-Ray Corporation April 4-8. Classes will be held from 1-5 p. m. to accommodate commuting students. J. B. Thomas of the General Electric X-Ray Corporation will be the instructor; other members of the staff will be Dr. Donald C. McClelland and H. George DeKay, Ph.D.

The Industrial Micology Course will be held July 11-23. The afternoon sessions will be devoted to a course in "Physiology of the Fungi." Special evening lectures by practicing industrial micologists will be announced later. Information may be obtained from Merle M. McClure, Coordinator of Adult Education, Technical Extension Division, Purdue University, Lafayette.

KANSAS

Two Postgraduate Courses.—The School of Medicine of the University of Kansas and the Kansas Medical Society have arranged a postgraduate course in anesthesiology April 4-6 at the university in Kansas City. While arranged especially for doctors in practice in Kansas, the course is open to all doctors of medicine. The fee is $20. Guest faculty members include: Drs. Henry K. Beecher, Boston; L. Lafe Bresette, Kansas City; M. Digby Leigh, Vancouver, B. C.; Richard S. McKee, Wadsworth; Stevens J. Martin, Hartford, Conn.; Merritt H. Kimball, Hugh S. Mathewson, Milton C. Peterson, Louis Porter, and Charles H. White, all of Kansas City, Mo.; Floyd C. Taggart, Topeka, and Rolland J. Whitacre, Cleveland.

A postgraduate course in internal medicine, psychiatry and dermatology will be presented March 28-31 at the university in cooperation with the state medical society and the Kansas State Board of Health. Besides members from the University of Kansas, instructors include Drs. Mandred W. Comfort, Rochester, Minn.; John M. Lyon, Denver; Elmer L. Sevringhaus, Nutley, N. J., and Cecil J. Watson, Minneapolis. The program includes a panel discussion in endocrinology. The fee is $25. For registration, address Extension Program in Medicine, University of Kansas Medical Center, Kansas City 3.

KENTUCKY

The Alben W. Barkley Chair of Medicine.—At the University of Louisville School of Medicine a professorship has been established for research into heart diseases to be designated "The Alben W. Barkley Chair of Medicine." Dr. John Walker Moore on his retirement as dean of the Medical School July 1 will assume the professorship. Funds for the first phase of the project will be provided by Vice President Barkley's gift to the university of the $10,000 Collier's Magazine Award which he received last year for distinguished public service. The money is to be used for research in heart disease, from which the Vice President's wife died two years ago. Mr. Barkley stated that he hoped the fund will be increased from other sources until it becomes a substantial foundation for research into heart diseases.

LOUISIANA

Establish Department of Psychiatry and Neurology.—A department of psychiatry and neurology has been established at Tulane University of Louisiana School of Medicine, New Orleans. Dr. Robert G. Heath, formerly of the Neurological Institute, New York, and the psychoanalytical clinic of the Columbia University College of Physicians and Surgeons, will head the department. Facilities will be correlated with community agencies in the New Orleans area, especially those of the social services unit. Graduate training consists of a three year training program for approved physicians in neurology or psychiatry, with psychoanalytical training optional through the New Orleans psychoanalytical group. Research is directed toward coordination between physiologic-biophysical factors in behavior and investigations of local cultural factors. The medical curriculum on the undergraduate level has been expanded to include more courses in neurology and psychiatry.

MASSACHUSETTS

Dunham Lectures.—The Edward K. Dunham Lectures for the Promotion of the Medical Sciences will be presented at the Harvard Medical School, Boston, in the Amphitheater, Building D, by Dr. Wilder G. Penfield, professor of neurology and neurosurgery, McGill University, Montreal, Canada, on "The Cerebral Cortex of Man." The first lecture, "Localization of Function," will be given March 28; on March 30 the subject will be "Ictus Epilepticus (Physiological Observations on the Mechanism of Cerebral Seizures)," and on April 1 "The Anatomy of Hallucinations, Dreams and Memory."

MICHIGAN

Marshall Memorial.—A four bed room at Hurley Hospital, Flint, will be furnished by funds raised as a memorial to Dr. William H. Marshall, Flint, who died Jan. 8, 1948. Funds were collected by a memorial committee of laymen and physicians to establish a project of community and cultural value.

Undergraduate Psychiatric Training.—The U. S. Public Health Service has made a grant of $37,500 to further development of the undergraduate psychiatric training program in Wayne University College of Medicine, Detroit. The fund is to be expended over a three year period in supplementing facilities now available. Dr. John M. Dorsey, chairman of the department of psychiatry, will be in charge of the program.

Sixteenth Annual Clinic.—The West Side Medical Society of Detroit will hold its sixteenth annual clinic May 4 from 10 a. m. to 4 p. m. in the auditorium of the Wayne County General Hospital and Infirmary at Eloise. The following program will be presented:

Clarence E. Umphrey, Detroit, Reactions to New Legislation Proposed by Medicine, Labor and Federal Security.
Edward J. McCormick, Toledo, Can the American Doctor Save Private Enterprise?
Bradley M. Patten, Ph.D., Ann Arbor, Micromoving Picture Records of the First Beats of the Embryonic Heart.
F. William Sunderman, Cleveland, Electrolytes in Health and Disease.
Philip Thorek, Chicago, Intestinal Obstruction.
Thomas L. Pool, Rochester, Minn., Tuberculosis of the Urinary Tract.
Walter S. Priest, Chicago, Management of Patients with Coronary Artery Disease.

There will be no registration fee, and all physicians are invited.

MINNESOTA

Communicable Diseases—New Low Records.—The Minnesota Department of Health reports that compared with the preceding year, 1948 was especially free from communicable diseases. Pneumonia reached a low level of 1,009 deaths compared with a previous low in 1946 of over 1,100 deaths. The 64 influenza deaths in 1948, which were fewer than half the number reported for 1947, also established a new low. Deaths from tuberculosis numbered 503, setting a new all-time low. There were 4 deaths among 28 cases of typhoid reported in 1948 compared with 5 deaths from this disease during the period 1944-1947 inclusive. No case of smallpox was reported in the state during the year; the last death from the disease occurred in 1941. Deaths from diseases most common in childhood include 15 from diphtheria, 14 from whooping cough, 11 from measles and 3 from scarlet fever.

NEW HAMPSHIRE

Personal.—Dr. George H. Stueck Jr., formerly of New York, has been appointed assistant professor of clinical medicine and assistant professor in the physiological sciences at Dartmouth Medical School, Hanover. He was also appointed to the medical staff of the Veterans Administration Hospital, White River Junction, Vt., as chief of research and assistant chief of medicine. Following his four years in the Army Medical Department during the recent war, Dr. Stueck returned to New York and was appointed lecturer in biochemistry and assistant in medicine on the staff of New York University College of Medicine.

NEW JERSEY

Oxford Professor to Lecture.—Dr. Leslie Witts, Nuffield professor of clinical medicine at Oxford University, England, will speak at the Ventnor Clinic staff meeting May 4 at Haddon Hall, Atlantic City, 9 p. m. on "The Teaching Hospital and the National Health Service." Dr. Witts will also act as visiting chief at the Atlantic City Hospital May 2-7.

NEW YORK

Edward J. Meyer Laboratory.—Mrs. S. Margaret Meyer has bequeathed $432,454.57 to construct, equip and maintain a research laboratory at the University of Buffalo Medical School. The institution will be known as the Edward J. Meyer Laboratory in memory of her husband, a Buffalo physician. Dr. Meyer died in September 1935.

Postgraduate Lectures.—The state medical society in cooperation with the state health department has arranged a series of lectures for the Saratoga County Medical Society to be given at the Saratoga Hospital, Saratoga Springs, at 3 p. m.

March 30, Nathan Sobel, New York, Diagnosis and Treatment of Common Skin Diseases.
April 6, Leon G. Berman, New York, Diagnosis and Treatment of the Acute Abdomen.

The Cayuga County Medical Society meeting at 8 p. m. at the Springside Inn, Auburn, will hear Dr. Ferdinand J. Schoeneck, Syracuse, speak on sterility.

New York City

A Death from Chickenpox.—There were 2,060 cases of chickenpox reported to the New York City Department of Health in February and 1,389 cases reported in January, the largest number of cases since April 1947. One death from chickenpox was also reported in January but none in February.

Course in Surgical Anatomy.—A course in surgical anatomy will be given at the Cornell University Medical College June 1-30 for five and one-half days a week, designed especially for candidates for the American Board of Surgery. The course will consist of an intensive review of surgical anatomy with demonstratio [illegible] Dr. Ernest W. Lampe will be in charge. [illegible] to 25, and the fee is $200. Inquiries may be directed to the Office of the Dean, Cornell University Medical College, 1300 York Avenue, New York 21.

Institute of Industrial Medicine Course.—The Institute of Industrial Medicine of the New York University-Bellevue Medical Center on March 3 inaugurated a course in medicine in industry for third year students at the New York University College of Medicine. Extending over a period of 12 weeks, the course will include lectures in dust diseases, lead, solvents, dermatoses, psychiatry in industry, applied physiology of respiration as applied to dust diseases, organization and administration of industrial medical departments, physical factors in the industrial environment, the role of research and physical examinations. Dr. Anthony J. Lanza is chairman of the institute.

Chest Surgery on Lower East Side.—The Lower East Side Planning Council, which includes fourteen settlement houses, churches and other organizations, in cooperation with the City of New York Department of Health is conducting a one month free mass chest roentgenologic survey on the Lower East Side. The campaign opened March 8. Tuberculosis occurs more frequently in the Lower East Side than in most other parts of the city, it is reported. Of all thirty health center districts in New York City, the Lower East Side has the second highest number of tuberculosis deaths as well as the second highest number of newly reported cases of tuberculosis. In about 10 per cent of all new active cases of tuberculosis which have come to the attention of the Health Department during the past year the patients are residents of the Lower East Side Health Center District.

OHIO

Annual State Medical Meeting.—The Ohio State Medical Association will hold its annual session April 19-22 with headquarters at the Neil House, Columbus. Section meetings will be from 9 a. m. to noon. Out of state speakers include:

Charles S. Cameron, New York, Cancer Control.
Joseph W. Gale, Madison, Wis., The Crippled Lung.
Henry S. Ruth, Philadelphia, Anesthesiology as an Aid to Diagnosis and Treatment.
Kenneth E. Appel, Philadelphia, Psychiatric Aspects of Medicine.
Philip M. Stimson, New York, Diagnosis and Treatment of Early Poliomyelitis.
John R. Neefe, Philadelphia, Recent Developments in Viral Hepatitis and Other Liver Diseases.

On Wednesday afternoon five groups will discuss the most recent developments in medicine and surgery. On Friday morning six round table discussions will include problems most frequently encountered by physicians. Both these programs are innovations in the annual session. Eighteen instructional courses following the line of panel discussions, designed to provide practical instruction on handling clinical problems, will be presented during the mornings Tuesday through Thursday. Attendance will be limited and admission will be by ticket only. Thursday evening's program will be devoted to a question and answer session on the procedures of the state's Industrial Commission, Department of Public Welfare and Department of Health.

The annual banquet will be held Wednesday at 7:30 p. m. The Woman's Auxiliary will meet at the Seneca Hotel April 19-21. Special societies holding meetings include the Ohio State Radiological Society and the Ohio chapters of the American College of Chest Physicians and the Academy of General Practice.

PENNSYLVANIA

Report of State Cancer Coordinating Committee.—The Pennsylvania State Cancer Coordinating Committee, made up of representatives of leading cancer fighting agencies in the state, has released its first report which indicates the wide scope of the cancer program in Pennsylvania. Organizations included in the committee are the Commission on Cancer of the Medical Society of the State of Pennsylvania, the Division of Cancer Control of the State Department of Health and the Pennsylvania and Philadelphia divisions of the American Cancer Society. The primary function of the committee is to prevent overlapping of programs through planned allocation of the functions or primary objectives of each agency. The problems with which the committee is concerned include lay and professional education, diagnosis and treatment of cancer, statistical and research organizations, organization and campaigns for funds. Specific phases of each of these problems have been assigned to participating agencies, and a substantial measure of cooperation on the part of each is reported. Members of the committee are Drs. John V. Blady, Philadelphia, and Horace B. Anderson, Johnstown, for the state medical society; Ross M. Vickers, Williamsport, and Dr. Harold J. Harris, Wilkes-Barre, for the Pennsylvania Division of the American Cancer Society, and Dr. Catharine Macfarlane, and E. C. Nicodemus for the Philadelphia Division of the American Cancer Society. Dr. Leverett D. Bristol, chief of the Division of Cancer Control of the Pennsylvania Division of Public Health, is chairman.

Philadelphia

Lecture on Cancer Chemotherapy.—Morris Belkin, Ph.D., National Cancer Institute, Bethesda, Md., will speak on "Current Experimental and Clinical Cancer Chemotherapy" April 8 at 8 p. m. in the Assembly Hall of Jefferson Medical College of Philadelphia. This is the annual lecture of the college chapter of Phi Lambda Kappa. All are invited to attend.

Appoint Director of Johnson Foundation.—Britton Chance, Ph.D., has been appointed director of the Eldridge Reeves Johnson Foundation for Medical Physics of the University of Pennsylvania School of Medicine. Dr. Chance, who before his appointment was associate professor of biophysics in the university's medical school, succeeds Dr. Detlev W. Bronk, who in January became president of Johns Hopkins University, Baltimore. Dr. Chance served as acting director for a time in 1940 and 1941. He has been a research student at Trinity College, University of Cambridge Faculty of Medicine, England. During the war he served as a staff member of the Massachusetts Institute of Technology's radiation laboratory. At the close of the war he worked and studied at the Nobel Institute in Stockholm on a Guggenheim fellowship. He is a graduate of the University of Pennsylvania and received a degree of Master of Science from there in 1936 and his Ph.D. degree in 1940.

WEST VIRGINIA

Personal.—The following members of the West Virginia State Medical Association were recently elected to honorary lifetime membership. Drs. Carson A. Willis, Clarksburg; Thomas W. Moore, Huntington; W. Byrd Hunter, Huntington; Horace S. Falconer, Fairmont, and Patrick L. Gordon, Charleston.

Atmospheric Pollution in Charleston Area.—A study of soot fall in the metropolitan area of Charleston has been made by the Bureau of Industrial Hygiene of the West Virginia Department of Health. Over a period of two and one-half years samples were collected and measured at twelve stations in 1946 and at six stations in 1947. The study shows that the problem is of sufficient magnitude to warrant serious consideration of plans for an over-all atmospheric pollution control program.

WASHINGTON

New Director of Health.—Dr. John A. Kahl, Seattle, has been appointed acting director of the Washington State Department of Health succeeding Dr. Arthur L. Ringle, who resigned December 3. Dr. Kahl is a graduate of University of Nebraska College of Medicine, Omaha, and has served intermittently as assistant director for several years.

Results of Immunization Program.—The value of immunization programs carried out by private physicians and local health departments of the state was again shown in the year 1948 by declines in smallpox, diphtheria and whooping cough. Since the vaccination of hundreds of thousands of Washingtonians in 1946, smallpox has not been reported in the state, where previously the average was 12 cases yearly for five years. Diphtheria dropped from 186 cases in 1947 to 88 in 1948 and whooping cough dropped from 1,480 in 1947 to 988 in 1948. Typhoid incidence was reduced to 12 cases, the lowest in the state's history. Pasteurization of milk and the fight against Bang's disease in cattle lowered undulant fever cases from 65 in 1947 to 43 in 1948. Diseases for which there is no immunization showed no such declines. Poliomyelitis cases in 1948 were 378 with 168 in 1947; the ten year average is 218 cases. Measles gained 10 times, with 1,249 cases in 1947 and 12,748 in 1948. Mumps cases were 12,164 in 1948, 3,633 in 1947; scarlet fever cases 1,811 in 1948 and 1,450 in 1947.

PUERTO RICO

Survey to Establish Medical School.—A preliminary study on the establishment of a school of medicine in Puerto Rico was conducted in San Juan by Dr. Robert A. Lambert, first medical director of the Puerto Rico School of Tropical Medicine, and government officials. Dr. Lambert conferred with Dr. Juan A. Pons, commissioner of education, Dr. Pablo Morales Otero, present director of the School of Tropical Medicine, Dr. Jose N. Gandara, member of the Superior Council of Education, and Drs. Ramon M. Suarez and Manuel de la Pila Iglesias, the last two members of the commission, who in 1944 made the first survey on the establishment of a school of medicine, under the auspices of the University of Puerto Rico. Drs. Rufus C. Harris, president of Tulane University, and Maxwell E. Lapman, director of the Tulane School of Medicine, were invited to cooperate in the survey now being conducted. The possibilities that a final report will be rendered on this project are more favorable than two years ago. Members of the majority party controlling the legislative branch of the government have expressed their desire to approve the measures necessary to carry on this project. For the establishment of this school of medicine a law appropriating $300,000 was approved by the governor in 1948.

GENERAL

Health Association Meeting.—The Southern Branch of the American Public Health Association will meet at the Baker Hotel, Dallas, Texas, April 14-16 under the presidency of Dr. John M. Whitney, New Orleans. *Section meetings will be held* on Friday afternoon. Among the speakers at the general session is Dr. Rolla E. Dyer, Bethesda, Md.

Results of Study of Child Health Services.—The American Academy of Pediatrics will announce the findings and recommendations resulting from a three year nationwide Study of Child Health Services at a dinner April 2 at the Roosevelt Hotel, New York. The speakers will be Drs. Warren R. Sisson, Boston, president of the academy; Thomas Parran, Pittsburgh; Roscoe L. Sensenich, President, American Medical Association, South Bend, Ind., and Mr. Winthrop Rockefeller, New York.

Conference on Coordinating Congresses of Medical Sciences.—A general constituent assembly to found a permanent *Council for the Coordination of International Congresses* of Medical Sciences will be held in Brussels, Belgium April 4-9. The conference is being sponsored jointly by the United Nations Educational, Scientific and Cultural Organizations and the World Health Organization. More than fifty representatives from international medical organizations and associations will attend.

Thoracic Surgery Meeting.—The American Association for Thoracic Surgery *will hold its annual meeting March 29-31* at the Hotel Roosevelt, New Orleans, under the presidency of Dr. Edward D. Churchill, Boston. Among those invited to present papers are:

Henry K. Beecher, Boston, Anesthesia for Thoracic Surgery, a Study of the Effect of the Open Pleura on the Blood Gases.
Homer L. Skinner, Staten Island, N. Y., *Pneumonectomy Followed by Immediate Thoracoplasty.*
Hawley H. Seiler, Oteen, N. C., Pulmonary Resection of Metastatic Malignancy.

Survey of the Nursing Profession.—The first authoritative survey among U. S. nurses since the war, recently conducted by the American Nurses' Association, reveals that there are today 435,000 registered professional nurses in this country, of whom only 280,500 or 64.5 per cent, are active. Of these, the largest concentration is in the Middle Atlantic states. The survey shows that the number of professional nurses in hospitals and schools of nursing increased 13.4 per cent from 1946-1947; in addition, the number of public health nurses and the number of professional nurses employed by government agencies rose in 1948. Enrolment of student nurses Jan. 1, 1948 totaled 91,643, a drop of about 14 per cent from the 106,900 students enrolled Jan. 1, 1947.

Industrial Medicine Conference.—The spring meeting of the New England Conference of Industrial Physicians and Surgeons will be held April 27 at Yale University School of Medicine, New Haven, under the sponsorship of the Connecticut State Medical Society, State Department of Health and the university. Members of the state medical society and friends are invited to attend. Papers will be presented on "Cardiac and Vascular Diseases, Their Industrial Significance." Out of state speakers will be Dr. Arthur M. Master, New York, on "Coronary Artery Disease, Pathogenesis with Consideration of Relationship of Effort to Myocardial Infarction," and Dr. Hugh Montgomery, Philadelphia, "Obliterative Disease of the Arteries." *The subject of the dinner address at 7 p. m. is* "Education in Industrial Health and Public Health." The registration fee is $3.

Residencies in Industrial Medicine.—General Motors Corporation announces an expansion of its In-Plant Training Program for physicians wishing practical experience in industrial medicine and is prepared to accept ten residents for the year beginning July 1949. Each appointee will receive orientation instruction in General Motors Medical Procedure and Industrial Hygiene Control, followed by assignment to a General Motors plant for a year's resident training. Each plant medical department will be affiliated with a hospital approved for intern and resident training by the Council on Medical Education of the American Medical Association. Each candidate must be a graduate of a Class A medical school, have completed at least a twelve months' rotating internship or its equivalent in hospital training, and have an interest in occupational health. He must also be licensed to practice medicine in the state to which he is assigned. Letters of application should be addressed to the Medical Consultant, General Motors Corporation, 3044 West Grand Boulevard, Detroit 2.

Allergists Annual Meeting.—The annual meeting of the American College of Allergists will be held in Chicago at the Palmer House April 14-17, under the presidency of Dr. George E. Rockwell, Milford, Ohio. Among those invited to present papers are:

Paul Holinger, Chicago,
Abel Froman, Chicago, [illegible] Lungs and Bronchi.
Jerome R. Head, Chica [illegible] Complications of Calcified Hylus Lymph Glands.
Emmet F. Pearson, Springfield, Ill., Studies of Chronic Bronchitis.
Samuel J. Prigal and Moses L. Furman, New York, Use of Bacitracin in Aerosol Form.
Karl D. Figley, Toledo, Ohio, Use of Concentrated Extract in the Treatment of *Mold-Sensitive Patients.*
Edwin R. Levine, Chicago, Effect of Bronchial Spasm on Pulmonary Function.
Harry S. Bernton, Washington, D. C., and Mary Loveless, New York, Cottonseed Protein vs. Cottonseed Oil Sensitivity.
Carl R. Rogers, Ph.D., Chicago, A Philosophy of Professional Relationships with Individuals.
Walter F. Rongaus, Donora, Pa., The Donora Catastrophe.
Tzvee N. Harris, Philadelphia, Antibody Formation in Young Animals.
Benjamin F. Feingold, Los Angeles, Infection in the Allergic Child.
James C. Overall, Nashville, Tenn., Drug Therapy in Hay Fever and Asthma in Children.
W. Ambrose McGee, Richmond, Va., Gastro-Intestinal Allergy in Children.

The informal banquet will be held Saturday evening at 7:30.

Community Health Institute.—The Chamber of Commerce of the United States will present a National Institute on Community Health April 7 at the Netherlands-Plaza Hotel in Cincinnati beginning at 9:30 a. m. "Has Your Community Kept Pace with the Nation's Health Progress?" will be the question under discussion with A. D. Marshall, assistant secretary, General Electric Company, as moderator. Among the speakers will be:

Mr. Earl O. Shreve, Washington, D. C., president, Chamber of Commerce, Opening Remarks.
Dr. George M. Wheatley, New York, Contribution of Governmental Public Health Services.
Dr. James R. Miller, Hartford, Conn., Contribution of the Medical Profession.
Mr. Albert V. Whitehall, Washington, D. C., Contribution of Hospitals.
Mr. O. C. Hubert, Atlanta, Ga., What Atlanta Has Done.
Mr. Herbert Garster, Farrell, Pa., What Farrell Has Done.
Mr. Robert A. Hornby, San Francisco, A Businessman's Appraisal of the Past, Present and Future.

Discussion periods will follow the morning and afternoon programs. At the luncheon Mr. Shreve will speak on "The Employer and His Workers' Health." Believing that more effective community health work is highly desirable, the Chamber of Commerce has planned the institute to stimulate the interest of businessmen and business organizations in their community health problems and to foster intelligent action.

CORRECTION

Systemic Administration of Bacitracin in Surgical Infections.—The first word in the fifth line of the abstract with this title appearing in The Journal, March 12, page 739, should be "systemic" instead of "systematic." The second word in the second line in the right hand column of this same abstract should read "without" instead of "with."

Marriages

Claude Lowry Pressly, Statesville, N. C., to Miss Margaret Amelie Mechlin of Washington, D. C., February 5.

Herbert Clifton Allen Jr., Richmond, Va., to Mrs. Elisabeth Hunt Wheeler of Bedford, Pa., February 1.

Seruch T. Kimble Jr., Washington, D. C., to Miss Helen Louise Matchett of Encino, Calif., January 15.

Richard Albert Martorell, to Miss Rhoda F. Knight, both of Tampa, Fla., in Cairo, Ga., February 5.

John Henry Holden, Staten Island, N. Y., to Miss Janet Scott Jacobs at Portland, Me., January 15.

Leo John Herbert, Syracuse, N. Y., to Miss Elizabeth Sweeney of New York, January 29.

Robert Stanton Sherman Jr., to Dr. Mary Jane Jensen, both of San Francisco, January 27.

Sidney Elian Wanderman, New York, to Miss Jeannette Boskoff of Brooklyn, February 14.

H. Kelvin Magill, Raton, N. M., to Miss Geraldine Sweet of Boston, January 24.

H. Earle Conwell to Mrs. Mary Lou Hill, both of Birmingham, Ala., January 16.

Deaths

Noble Alvin Upchurch, Jacksonville, Fla.; born in Callahan, Fla., May 31, 1877; Vanderbilt University School of Medicine, Nashville, Tenn., 1900; member of the American Medical Association; past president of the Duval County Medical Society; served the American Public Health Association for many years in various offices and was made a fellow of that organization in 1930 in recognition of his outstanding contributions in field of public health; later recognized by the Cuban government when he was chosen the recipient of the Finlay Award and cited for this achievements; past president of the Florida Public Health Association; for eighteen years, from Jan. 18, 1925 to Dec. 31, 1942, health officer of the city of Jacksonville; retired Jan. 1, 1943 because of ill health; member of the staffs of St. Luke's and St. Vincent's hospitals; served as physician to the athletic department of the old Duval High School; medical examiner for many life insurance companies; died December 31, aged 72.

Robert Koritschoner ⊕ Kansas City, Mo., born in Vienna, Austria, May 9, 1884; Medizinische Fakultät der Universität, Wien, Germany, 1910; specialist certified by the American Board of Pathology; member of the American Association of Pathologists and Bacteriologists, College of American Pathologists and the American Society of Clinical Pathologists; director of pathology at the University of Kansas City School of Dentistry; affiliated with the Douglass Hospital, Kansas City, Kan., Wheatley-Provident Hospital and the Menorah Hospital, where he died November 15, aged 64, of carcinoma of the pancreas.

Arthur Thomas Davis, Riverhead, N. Y.; born in Utica, N. Y., Dec. 11, 1882; Albany Medical College, 1904; member of the American Medical Association; for many years commissioner of health of Suffolk County; formerly commissioner of health for Delaware; served during World War I; formerly associated with the U. S. Public Health Service; consulting epidemiologist for the Mather Memorial Hospital in Port Jefferson; epidemiologist for the Southside Hospital in Bayshore; consulting physician to the Southampton (N. Y.) Hospital; died December 17, aged 66, of chronic nephritis with uremia.

Julian Baker Blue ⊕ Memphis, Tenn.; born in 1884; University of Louisville (Ky.) Medical Department, 1907; specialist certified by the American Board of Ophthalmology and of the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; past president of the Shelby County Medical Society; for many years on the faculty of the University of Tennessee College of Medicine; on the staff of the Methodist Hospital, where he died January 25, aged 64.

William Lemuel Alcorn ⊕ Washington, Iowa; Keokuk (Ia.) Medical College, College of Physicians and Surgeons, 1904; past president of the Washington County Medical Society; director of the Washington State Bank; died November 20, aged 68.

Frank Wesley Allin ⊕ Chicago; Rush Medical College, Chicago, 1905; assistant professor of pediatrics (Rush) emeritus, University of Illinois College of Medicine; on the examining board during World War I; served on the staffs of the Garfield Park Community Hospital and the Presbyterian Hospital, where he died December 28, aged 79, of coronary thrombosis.

Joseph S. Ayers, Newark, N. J.; New York Homeopathic Medical College, 1883; died November 15, aged 88, of coronary thrombosis.

De Witt Baer, Steele, N. D.; State University of Iowa College of Medicine, Iowa City, 1908; member of the American Medical Association; died November 20, aged 63, of hypertension.

Andrew E. Bell, Mooresville, N. C.; University of Maryland School of Medicine, Baltimore, 1897; member of the American Medical Association; formerly member and chairman of the school board; affiliated with the Lowrance Hospital; vice president of the First National Bank; died November 24, aged 81, of pyelonephrosis.

Linford Shepherd Besson ⊕ Portland, Ore.; Hahnemann Medical College and Hospital of Philadelphia, 1915; for many years member of the Oregon Board of Medical Examiners, of which he had been a secretary treasurer; served overseas during World War I; affiliated with the Physicians and Surgeons Hospital, where he died December 1, aged 60, of coronary occlusion.

Joseph Henry Blomer, Quincy, Ill.; Rush Medical College, Chicago, 1906; member of the American Medical Association; on the staff of St. Mary's Hospital, where he died December 2, aged 68, of carcinoma of the left lung.

William Ballantine Boyd, East Windham, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1905; for many years on the staff of the Presbyterian Hospital in New York; died in Intercession City, Fla., December 1, aged 71, of cardiac failure and bronchial asthma.

Elmer E. Clark, Oakley, Ill.; Barnes Medical College, St. Louis, 1898; died December 8, aged 78, of injuries received when his automobile was struck by a train.

Edward Clifton Clayton ⊕ Leeds, Ala.; Birmingham Medical College, 1909; died in South Highland Infirmary, Birmingham, November 24, aged 63, of complications following a ruptured appendix.

Robert James Curdy ⊕ Kansas City, Mo.; Washington University School of Medicine, St. Louis, 1895; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology and the American Ophthalmological Society; fellow of the American College of Surgeons; on the staffs of St. Margaret's Hospital, Kansas City, Kan., and St. Mary's, St. Luke's, Kansas City Municipal and Children's Mercy hospitals; died December 15, aged 80.

Charles Davis, New Holland, Ohio; Eclectic Medical College, Cincinnati, 1892; died in the Grant Hospital, Columbus, November 14, aged 81.

Augusto de Mier Alonso, Lafayette, La.; Louisiana State University School of Medicine, New Orleans, 1942; died November 27, aged 31, as the result of an automobile accident.

William Joseph Doyle, St. Louis; Beaumont Hospital Medical College, St. Louis, 1901, and Washington University School of Medicine, St. Louis, 1903; member of the American Medical Association; fellow of the American College of Surgeons; for many years affiliated with the City hospital; died in St. Vincent's Hospital November 22, aged 75, of carcinoma of the lung.

George Adam Drescher ⊕ Lewiston, Mich.; Detroit College of Medicine, 1915; examining physician for local draft board during World War II; formerly practiced in Detroit, where he was affiliated with Harper and Deaconess hospitals; died December 16, aged 61, of cerebral hemorrhage and diabetes insipidus.

Sidney Weiss Durschlag ⊕ Cleveland; Ohio State University College of Medicine, Columbus, 1931; specialist certified by the American Board of Otolaryngology; flight surgeon and captain in the medical corps of the Army of the United States during World War II; served as an examiner for the Veterans Administration; affiliated with the Polyclinic Hospital and the Mount Sinai Hospital, where he died December 16, aged 42, of cancer of lung.

Jerome Perley Fickett ⊕ Portland, Me.; Medical School of Maine, Portland, 1898; formerly member of the state legislature; served as health officer of Naples; died recently, aged 73, of carcinoma.

Edward J. Fleetwood, Lincoln, Neb.; University of Nebraska College of Medicine, Omaha, 1902; died in Pomona, Calif., recently, aged 76, of arteriosclerosis and hypertension.

Rhoda Galloway-Yolton, Bloomington, Ill.; Woman's Medical College, Chicago, 1887; died in the Brokaw Hospital, Normal, December 23, aged 86, of myocarditis and arteriosclerosis.

William John Gatti, Philadelphia; College of Physicians and Surgeons, Baltimore, 1914; died in the Mercy Hospital recently, aged 56, of bronchopneumonia and arteriosclerotic heart disease.

William Armistead Gills ⊕ Passed Assistant Surgeon, Lieutenant, U. S. Navy, retired, Norfolk, Va.; Medical College of Virginia, Richmond, 1900; entered the navy on Dec. 22, 1920 and retired on Dec. 15, 1923 for incapacity resulting from an incident of service; served during World War I; died November 23, aged 72, of coronary occlusion.

Frederick S. Greenbaum, Los Angeles; Rush Medical College, Chicago, 1902; died November 25, aged 70.

Charles Avery Hansen, Mount Vernon, Wash.; American Medical Missionary College, Battle Creek, Mich., and Chicago, 1906; at one time a missionary; died December 13, aged 76.

Edgar E. Hart, Oklahoma City; St. Louis College of Physicians and Surgeons, 1896; formerly associated with the Indian Service; died in Wesley Hospital recently aged 80, of tumor of the prostate and paralysis.

Paul Headland, Galesburg, Ill.; Loyola University School of Medicine, Chicago, 1919; member of the American Medical Association; served during World War II; in charge of the student health service at Knox College; died January 7, aged 60, of acute coronary occlusion.

Virginia Borum Pope Hickerson, Cincinnati; University of Virginia Department of Medicine, Charlottesville, 1926; certified by the National Board of Medical Examiners; formerly member of the staff of the Mississippi State Tuberculosis Sanatorium in Sanatorium, Miss.; resident physician at Dunham Hospital, where she died December 25, aged 57, of cerebral hemorrhage.

Milton M. Kay, Encinitas, Calif.; Northwestern University Medical School, Chicago, 1905; member of the American Medical Association; died in Paradise Valley Sanitarium and Hospital in National City, November 16, aged 76, of sprue.

Jay S. Liebman, Alexandria, Va.; Atlanta College of Physicians and Surgeons, 1910; died in Martinsburg, W. Va., November 20, aged 64.

Raffaele Lorini, Beaumont, Calif.; University of Pennsylvania Department of Medicine, Philadelphia, 1881; member of the American Medical Association; formerly health officer of Coronado; died November 7, aged 89.

George Malcolm MacGregor, Kent, Wash.; Johns Hopkins University School of Medicine, Baltimore, 1902; member of the American Medical Association; formerly health officer; served on the staff of the Auburn (Wash.) General Hospital; died in Steilacoom November 11, aged 77, of arteriosclerotic heart disease.

Robert F. McLean, Gibbon, Neb.; Western University Faculty of Medicine, London, Ontario, Canada, 1906; served on the staff of the Good Samaritan Hospital in Kearney, died November 25, aged 65, of lung tumor.

Frank Rouse Morley, Sedalia, Mo.; University Medical College of Kansas City, 1901; member of the American Medical Association; died November 25, aged 70, of coronary thrombosis.

Joseph Sweetman Parent ⊕ Galway, N. Y.; Albany (N. Y.) Medical College, 1886; served as health officer in the town and village of Galway; died December 7, aged 87.

Napoleon B. Rundall, Petaluma, Calif. (licensed in California in 1918); for many years city health officer; died December 16, aged 66.

Jibran Yusuf Skeirik ⊕ Lawrence, Mass.; Harvard Medical School, Boston, 1929; certified by the National Board of Medical Examiners; member of the New England Obstetrical and Gynecological Society; died in the Beth Israel Hospital, Boston, December 5, aged 55.

Colbert Cecil Stepp, Hatfield, Ky.; Kentucky University Medical Department, Louisville, 1906; died in Williamson, W. Va., December 18, aged 76.

James Lona Salmon Stewart ⊕ Boise, Idaho; Rush Medical College, Chicago, 1899; member of the founders group of the American Board of Surgery; member of the American Association for the Surgery of Trauma; fellow of the American College of Surgeons; served during World War I; affiliated with St. Alphonsus and St. Luke's hospitals; died December 15, aged 73.

Edward Charles Straessley ⊕ Beaver Falls, Pa.; University of Maryland School of Medicine, Baltimore, 1912; died in the Providence Hospital December 7, aged 59, of coronary artery disease.

James D. Stuart, Crystal, Mich.; Baltimore University School of Medicine, 1899; for many years coroner of Genesee County; died December 8, aged 74.

Walter Thomas Swink, Memphis, Tenn.; College of Physicians and Surgeons of Chicago, 1896; Vanderbilt University School of Medicine, Nashville, 1900; formerly associate professor of medicine at the University of Tennessee College of Medicine; member of the American Medical Association; served during World War I; affiliated with John Gaston Hospital; died December 20, aged 78, of pneumonia.

Andrew John Taddeo, New York; University and Bellevue Hospital Medical College, New York, 1929; served during World War II; on the staff of the Morrisania Hospital; died December 24, aged 49.

Ernest Taylor Tappey, Grosse Pointe Farms, Mich.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1879; formerly on the faculty of Wayne University College of Medicine; died December 22, aged 95, of left lobar pneumonia.

Frank Donaldson Thomas ⊕ St. Petersburg, Fla.; Hahnemann Medical College and Hospital of Philadelphia, 1912; member of the Medical Society of the State of Pennsylvania; served during World War I; formerly on the staffs of the Nesbit Memorial Hospital in Kingston, Pa., and the Homeopathic Hospital in Wilkes-Barre, Pa.; affiliated with the Veterans Administration; died January 8, aged 59.

Frank Mathias Tombaugh ⊕ Burlington, Iowa; Northwestern University Medical School, Chicago, 1896; past president of the Iowa State Surgical Society and the Des Moines County Medical Society; fellow of the American College of Surgeons; medical examiner for local draft boards during World Wars I and II; affiliated with the Mercy Hospital; died December 29, aged 79, of cerebral hemorrhage.

Aaron Samuel Torrens ⊕ Hanford, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1909; formerly city and county health officer; medical examiner for the draft board during World Wars I and II; died January 2, aged 69, of myocardial failure.

Victor Floyd Tremor, Indianapolis; Indiana University School of Medicine, Indianapolis, 1923; member of the American Medical Association; served during World Wars I and II; formerly affiliated with the Veterans Administration Hospital, where he died December 31, aged 53, of myocardial infarction.

Granville B. Trout, Zanesville, Ohio; Starling Medical College, Columbus, 1892; past president of the Muskingum County Academy of Medicine; formerly county coroner; affiliated with the Bethesda Hospital; medical examiner for the Metropolitan Life Insurance Company; died in the Good Samaritan Hospital, December 15, aged 87, of complications as the result of a fractured hip received in a fall.

Benjamin Randall Tupper, Schenectady, N. Y.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1888; affiliated with the New York Post Graduate Hospital in New York; died in the Ellis Hospital December 8, aged 86, of coronary occlusion.

George Hampden Upton, New Orleans; Tulane University of Louisiana School of Medicine, New Orleans, 1907; member of the American Medical Association; affiliated with Mercy Hospital; died January 29, aged 66, of thrombosis.

Samuel Burns Van Dalsem, San Jose, Calif.; Hahnemann Medical College and Hospital of Philadelphia, 1902; member of the American Medical Association; served during World War I; died January 18, aged 73, of carcinoma.

James Murray Washburn, Lake Lure, N. C.; Northwestern University Medical School, Chicago, 1899; fellow of the American College of Physicians; formerly practiced in Chicago, where he was associate professor of medicine, emeritus, at his alma mater and on the staff of Passavant Memorial Hospital; at one time associated with the U. S. Public Health Service; mayor for many years; died January 16, aged 75, of carcinoma.

Cyril Aloysius Whalen ⊕ Mahanoy City, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1934; past president of the board of education; died in the Locust Mountain Hospital, Shenandoah, January 25, aged 40, of Hodgkin's disease.

Leander C. White ⊕ Adair, Okla.; Kentucky University Medical Department, Louisville, 1905; past president and secretary of the Mayes County Medical Society; local surgeon for the Missouri, Kansas and Texas Railroad; examiner for Mayes County Selective Service during World Wars I and II; elected first coroner of the Mayes County in 1907; served on the school board; died December 4, aged 75, of heart disease.

John Wyman Whiteside, Chicago; Rush Medical College, Chicago, 1884; died January 16, aged 91, of myocarditis.

Clayton Lester Wood, Washington, D. C.; Medical College of Virginia, Richmond, 1918; served during World War I; medical director of the Disabled American Veterans; for many years affiliated with the Veterans Administration; died January 3, aged 60.

Swan G. Wright, Minneapolis; Minneapolis College of Physicians and Surgeons, 1908; member of the American Medical Association; served on the staff of the Swedish Hospital, where he died December 13, aged 69, of heart disease.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 5, 1949.

The National Association for the Prevention of Tuberculosis

The National Association for the Prevention of Tuberculosis has celebrated its jubilee. Its recommendations for the education of the public, the purity of our milk supply and the erection of sanatoriums gradually became parts of a national scheme of tuberculosis control, and great saving of life and prevention of the disease followed. In 1898, with a population of 36,000,000, there were 70,000 deaths from tuberculosis in England and Scotland. In 1948, with a population of 48,000,000, the deaths are expected to be under 27,000. The association has played an important part in the campaign for mass radiography. In the last few years increased attention has been given to the problem of tuberculosis in the British Empire, particularly in the smaller colonies, where it is a serious menace, and with the disease within measurable distance of control at home this may well be the field of future work. The association has already carried out research surveys in the West Indies, the Gold Coast and elsewhere. It also offers colonial scholarships for study in this country. The six scholars for 1948 came from East Africa, the Gold Coast, Malta, Singapore, the Sudan and Trinidad.

Extended Safeguards for Workmen

An employers' liability bill entitled Safety of Employment has been introduced in the House of Commons. It greatly extends the liability of employers. It proposes to protect all who work under a contract of employment and brings within its scope such employees as agricultural workers, local government employees, domestic servants and merchant seamen. At present an injured workman can claim benefit under the National Insurance (Industrial Injuries) Act, and in some cases he can in addition claim damages at common law, if he can prove that the employer was negligent. The object of the bill is to improve working conditions and to minimize claims for damages by establishing a minimum standard of safety. It obliges the employer to take all practicable steps to prevent injury at work, including injury to health, and lays down that it shall not be taken as fulfilment of his obligation for him to have followed customary practices. Further provisions empower the Minister of Labor to prescribe minimum standards of safety in a particular occupation. The bill is in line with much recent legislation, which has aimed at serving the interests of the workman in every possible way.

Medical Students to Act as Nurses

An important innovation in the training of students has taken place at the London Hospital. They are to be trained in nursing, which means tidying beds, washing patients and making tea in male wards. Dr. Clark-Kennedy, dean of the hospital, thus explains the innovation in the *Daily Mail:* "When a medical student becomes a doctor it is part of his duty to supervise nursing. He must teach mothers, daughters, sisters and wives how to nurse patients at home. How can a student know if nursing is being well done if he has not had some training himself?" The students will be still under the control of the dean and not under that of the matron, but the dean has delegated his authority to the ward sisters, who will direct the students' activities and teach them the principles of good nursing.

AUSTRALIA

(From Our Regular Correspondent)

March 1, 1949.

Deadlock on National Medical Service

The Government is proposing desperate measures to overcome the resistance of the British Medical Association to so-called free medicine and the National Health Service plan.

The Government proposes to launch an intensive publicity campaign advising people to pay only half any account from their doctor; it will protect a patient against legal action for recovery of the other half, and will advise doctors that they can collect it by applying to the Government under the Medical Benefits Act.

This would not be a breach of the Constitution forbidding civil conscription of doctors or of the promise that no compulsion would be used to get doctors into either the free medicine or national health scheme, considers the Government.

The Government may issue new regulations involving prosecutions and heavy penalties for doctors writing prescriptions which appear in the free medicine formulary without using the official free medicine form.

The Minister for Health, Senator McKenna, was advised that doctors had used the same prescription as that in the Government formulary, but had added a different flavoring to avoid exact conformity. This is difficult to understand, because nearly all doctors refused to accept the formularly and forms when delivery was attempted.

The attitude of the British Medical Association is that they have never opposed the Government policy to give the people "free" medicine and "half-free" medical treatment.

The British Medical Association is anxious to offer full cooperation in such services, provided only that there shall not be interference with the liberty of doctor or patient, or with the intimate and confidential relationship between them.

The Government ignored the objections of the British Medical Association. Thus in relation to "free" medicine, only those medicines in a Government list are "free" and then only if the doctor writes his prescription on a Government form, the use of which automatically places him under the control of regulations and within the scope of penalties, both of which can be varied at the behest of the Government or the Minister.

Again, in the National Health Service Act, the Government aims to compile a schedule of the fees payable for attendance by general practitioners in accordance with which the patient will pay half and the Government half, but only if the doctor agrees to be bound by changeable regulations which require disclosure of details of the patient's illness, which are able to limit the type of practice he may undertake and which alter the amount and manner of payment for his services as the Government wills.

To such conditions the profession can never submit, nor will the Government countenance their removal. "Who then is denying the people these great social benefits?" asks the British Medical Association. Doctors cannot give them without the sacrifice of their freedom, but the Government can, at the expense only of the sacrifice of their lust for power. Let the Government decree that all medicines, or certain expensive single drugs, prescribed on a doctor's private form, shall be free; let it determine also that it will refund to the patient half his medical fees on production of a receipt.

The reported proposal of the Government to exercise coercion by prosecution and fines on doctors whose offense stemmed only from the value they placed on their freedom deserved only contempt.

The profession will rely not only on learned legal opinion that the Government possesses no legal or constitutional power to effect this iniquity, but also on the will of the great Australian nation to see justice and fair play.

The British Medical Association is holding fast to a fundamental ethical principle of the medical profession—that a doctor's first duty is to his patient and that duty cannot be subordinated to any Government direction. Threats of fines and other forms of intimidation certainly will not win the cooperation of the medical profession.

When the Federal Government obtained from the people of Australia by referendum in 1946 constitutional authority to legislate for national medical and dental services, the new Commonwealth power was limited by a proviso excluding any form of civil conscription. Should the Chifley Government deliberately provoke a legal contest with the medical profession over this constitutional safeguard, there can be no beginning of any sort of national health service until it is settled. There is also the much bigger political question, whether the national health service projected by the Government will, under Australian conditions and under a socialist administration, give the people real benefits commensurate with what they will have to pay for it.

Nothing offered by the Government, neither "free" medicine nor part payment of doctors bills, is really going to be a gift to any one. It will have to be paid for by heavy taxation. The British scheme is already costing 52,000,000 pounds a year more than was estimated, and the New Zealand Government has had to review the cost of its scheme.

On Dec. 22, 1948, the Government, through Senator McKenna, advised the British Medical Association that every endeavor had been made by the Government to secure the cooperation of the association, which was grievously lacking in a sense of social responsibility. The Government does not intend that its proposals should be further delayed or frustrated by the British Medical Association. The Government has decided that, within the limits of its constitutional power, it will proceed to put its plans into operation. One of the most valuable assets of the British Medical Association is the support of the Australian public and press. There has been surprisingly little public demand for the "benefits" of "free" medicine. Even in poorer and industrial areas where they expected patients might exert some pressure, the people are apathetic.

Although there have been some break-aways throughout the campaign, most druggists have supported the scheme because the Government endorsed certain principles laid down by the Federated Pharmaceutical Guild. Druggists claim that they have entered into a purely business contract with the Federal Government, and were not prepared to take sides into a dispute between the British Medical Association and the Government.

In practically every doctor's rooms is a disapproval notice setting out the reasons for nonparticipation in the scheme. Scarcely any of them have the prescription forms in their possession.

Politicians in Canberra are becoming increasingly worried about the public reaction to the recent Government attempts to force doctors to participate in their plans. The effect of this public feeling may be noticed in the national elections in May. The British Medical Association may go to the High Court to test the validity of the Pharmaceutical Benefits Act and the National Health Services Act. The Government has already on its hands a long legal battle over the nationalization of banks, and it would not be disposed to engage in another.

The federal council of the British Medical Association will hold a four day meeting in Melbourne from March 1. Counter measures to combat the Government's latest offensive will be discussed.

Vital Statistics, 1947

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At some hospitals the nursing and other female staff have been reduced to half. One result of this shortage is that shock therapy has had to be abandoned in some cases because of the demands of routine work on the depleted nursing staff. In some of the mental hospitals of New South Wales the number of patients sleeping in wards is half as many again as the wards were intended to accommodate.

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ITALY

(From Our Regular Correspondent)

Florence, Feb. 3, 1949.

First Congress on Antibiotics

The Center for Information and Studies on Antibiotics has organized its first national congress, which was held in Milan under the chairmanship of Professor Redaelli. Professor Pratesi, director, Institute for Chemical Pharmaceutics, University of Pavia, reported on "Studies of Antibiotics from the Chemical Point of View." The speaker recalled that many antibiotic substances are well known, and others are waiting to be isolated, exactly identified and utilized. To date about sixty characteristic substances isolated from germs and from fungi present an antibacterial activity, and about thirty of them have been studied from the point of their clinical action. Attempts to classify them encounter difficulties because of the variety of their nature and mode of action. The speaker suggested a scheme of arranging the antibiotics according to their chemical nature in eight groups as follows: (1) quinones of isocyclic series, (2) phenols, (3) derivatives of pyrazine and of phenazine, (4) unsaturated lactones, (5) derivatives of thiazole (penicillin), (6) streptomycin, (7) polypeptides and (8) enzymes.

The speaker discussed particularly the chemical structure of the various substances, exposing the characteristic groups of each of them and discussing all the possible concepts concerning the mode of action of each group. He finally spoke about the chief antibiotics whose structure has not yet been defined, and among them is streptomycin.

The second subject reported on was "Association of Chemotherapy and Antibiotics in Treatment Directed Against Infection." The speakers were Professor Magrassi from the medical clinic of the University of Sassari and Professor Scalfi, assistant at this clinic. The results of research suggest the importance of the possibility of combining two or several antibacterial compounds in order to obtain a greater efficacy against bacteria. It has been demonstrated that sulfathiazole, the pyridine compounds and sulfadiazine may be combined with the antibiotics for an effect on gram-negative bacteria. Combined administration of penicillin and arsphenamine, and of streptomycin with sulfonamide compounds and penicillin, is of the greatest practical interest. But the most noteworthy results of research are those on the association of streptomycin with sulfones in the treatment of experimental tuberculous infection; these results constituted the starting point for a series of clinical applications, which already have yielded promising results.

The speakers discussed the mechanism through which the great efficacy of some of the associations between chemotherapeutic agents and antibiotics may be realized.

The experimental data are favorable to the employment of the combined treatment with chemotherapeutic agents and antibiotics; particularly convincing were the data obtained with the treatment of experimental infections. Therefore clinical control was undertaken. Many observations were collected during the last years. There is not a single field of infectious pathology in which therapeutic trials have not been carried out, but there remain many points which need clarification. However, some general conclusions may be drawn which confirm the progress made by the experimental studies. Clinical observations have made evident that the association of the chemotherapeutic agents and of the antibiotic provides for an increased antibacterial activity in many but not in all of the infections in man. Such an increased therapeutic efficacy is revealed, for instance, by the association of penicillin with the sulfonamide compounds in the treatment of pneumonia and pneumococcic meningitis and by the association of streptomycin, penicillin and sulfonamide compounds in the meningitis caused by hemophils. An even better evaluation of the therapeutic use of the association of chemotherapeutic agents and of antibiotics has been afforded by the results in the treatment of infections in which the isolated administration of the antibacterial drugs failed. This applies to the various types of association of streptomycin, penicillin and sulfonamide compounds in the infections caused by Eberth's bacillus and by Brucella; the association of streptomycin with sulfadiazine determined a decisive progress in the treatment of brucellosis.

Prof. Pietro Fornara, head of the pediatric department of the main hospital of Novara, reported on the third subject, "The Antibiotics in the Treatment of Meningitis in Infants." According to some statistics, in meningococcic meningitis cure was obtained with sulfonamide treatment in 100 per cent of cases, and the sulfonamide compounds still constitute the basic method of treatment. In cases which are resistant to some of the sulfonamide compounds one may vary the sulfonamide compounds (sulfadiazine, not methylated sulfadiazine, is the most active one), and they may be combined occasionally with antibiotics. The results obtained so far with penicillin are not too brilliant.

Pneumococcic meningitis is difficult to cure. Before the sulfonamide era, the mortality rate was 100 per cent; with sulfonamide treatment it was reduced to 65 to 70 per cent. Even with combined chemotherapeutic treatment the mortality rate remains high. Today the treatment of choice for meningitis caused by Hemophilus influenzae is streptomycin combined with sulfonamide compounds, while in some cases it may be supported by Alexander's serum or penicillin. The association of penicillin with sulfonamide compounds or other chemotherapeutic agents has proved useful in meningitis caused by Streptococcus and in that caused by Staphylococcus (a particularly fatal type).

Reports on results obtained in tuberculous meningitis are scarce and doubtful: Nobody has been able to report a definite cure. The employment of streptomycin is still in the experimental stage. It should be used, but five more years must pass before definite results may be pronounced. In addition to dosage, there is the problem of individual resistance and of allergy. Occasionally, streptomycin should be combined with a sulfone or a vitamin, or with morrhuates or other substances. The speaker obtained the best results with combined treatment with streptomycin and vaccine by mouth.

Before the adjournment of the congress, Professor Frankl (Hungary) reported on his research carried out in collaboration with Professor Melczer concerning a method for prolonging and reinforcing the effect of penicillin. The authors used a 10 to 15 per cent aqueous solution of gelatin which may be administered by intramuscular, intravenous or intraspinal route. Using a single dose of 50 to 200,000 units of penicillin contained in the solution just mentioned, the bacteriostatic concentration of the antibiotic in the blood lasted for eight to ten hours; with an intravenous injection its duration varied from six to ten hours. By intraspinal route 10 to 20,000 units of penicillin in 1 cc. of gelatin furnished a bacteriostatic effect for twenty-four to seventy-two hours. A 25 to 30 per cent solution of gelatin may serve as a vehicle for injections into sinuses. The speakers recommended the use of the preparation in all septic conditions.

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The second subject reported on was "Association of Chemotherapy and Antibiotics in Treatment Directed Against Infection." The speakers were Professor Magrassi from the medical clinic of the University of Sassari and Professor Scalfi, assistant at this clinic. The results of research suggest the importance of the possibility of combining two or several antibacterial compounds in order to obtain a greater efficacy against bacteria. It has been demonstrated that sulfathiazole, the pyridine compounds and sulfadiazine may be combined with the antibiotics for an effect on gram-negative bacteria. Combined administration of penicillin and arsphenamine, and of streptomycin with sulfonamide compounds and penicillin, is of the greatest practical interest. But the most noteworthy results of research are those on the association of streptomycin with sulfones in the treatment of experimental tuberculous infection; these results constituted the starting point for a series of clinical applications, which already have yielded promising results.

The speakers discussed the mechanism through which the great efficacy of some of the associations between chemotherapeutic agents and antibiotics may be realized.

The experimental data are favorable to the employment of the combined treatment with chemotherapeutic agents and antibiotics; particularly convincing were the data obtained with the treatment of experimental infections. Therefore clinical control was undertaken. Many observations were collected during the last years. There is not a single field of infectious pathology in which therapeutic trials have not been carried out, but there remain many points which need clarification. However, some general conclusions may be drawn which confirm the progress made by the experimental studies. Clinical observations have made evident that the association of the chemotherapeutic agents and of the antibiotic provides for an increased antibacterial activity in many but not in all of the infections in man. Such an increased therapeutic efficacy is revealed, for instance, by the association of penicillin with the sulfonamide compounds in the treatment of pneumonia and pneumococcic meningitis and by the association of streptomycin, penicillin and sulfonamide compounds in the meningitis caused by hemophils. An even better evaluation of the therapeutic use of the association of chemotherapeutic agents and of antibiotics has been afforded by the results in the treatment of infections in which the isolated administration of the antibacterial drugs failed. This applies to the various types of association of streptomycin, penicillin and sulfonamide compounds in the infections caused by Eberth's bacillus and by Brucella; the association of streptomycin with sulfadiazine determined a decisive progress in the treatment of brucellosis.

Prof. Pietro Fornara, head of the pediatric department of the main hospital of Novara, reported on the third subject, "The Antibiotics in the Treatment of Meningitis in Infants." According to some statistics, in meningococcic meningitis cure was obtained with sulfonamide treatment in 100 per cent of cases, and the sulfonamide compounds still constitute the basic method of treatment. In cases which are resistant to some of the sulfonamide compounds one may vary the sulfonamide compounds (sulfadiazine, not methylated sulfadiazine, is the most active one), and they may be combined occasionally with antibiotics. The results obtained so far with penicillin are not too brilliant.

Pneumococcic meningitis is difficult to cure. Before the sulfonamide era, the mortality rate was 100 per cent; with sulfonamide treatment it was reduced to 65 to 70 per cent. Even with combined chemotherapeutic treatment the mortality rate remains high. Today the treatment of choice for meningitis caused by Hemophilus influenzae is streptomycin combined with sulfonamide compounds, while in some cases it may be supported by Alexander's serum or penicillin. The association of penicillin with sulfonamide compounds or other chemotherapeutic agents has proved useful in meningitis caused by Streptococcus and in that caused by Staphylococcus (a particularly fatal type).

Reports on results obtained in tuberculous meningitis are scarce and doubtful: Nobody has been able to report a definite cure. The employment of streptomycin is still in the experimental stage. It should be used, but five more years must pass before definite results may be pronounced. In addition to dosage, there is the problem of individual resistance and of allergy. Occasionally, streptomycin should be combined with a sulfone or a vitamin, or with morrhuates or other substances. The speaker obtained the best results with combined treatment with streptomycin and vaccine by mouth.

Before the adjournment of the congress, Professor Frankl (Hungary) reported on his research carried out in collaboration with Professor Melczer concerning a method for prolonging and reinforcing the effect of penicillin. The authors used a 10 to 15 per cent aqueous solution of gelatin which may be administered by intramuscular, intravenous or intraspinal route. Using a single dose of 50 to 200,000 units of penicillin contained in the solution just mentioned, the bacteriostatic concentration of the antibiotic in the blood lasted for eight to ten hours; with an intravenous injection its duration varied from six to ten hours. By intraspinal route 10 to 20,000 units of penicillin in 1 cc. of gelatin furnished a bacteriostatic effect for twenty-four to seventy-two hours. A 25 to 30 per cent solution of gelatin may serve as a vehicle for injections into sinuses. The speakers recommended the use of the preparation in all septic conditions.

Correspondence

TUBERCULOSIS IN RECENT IMMIGRANTS

To the Editor:—In Queries and Minor Notes, January 29, Dr. William A. Evans of Detroit states:

> "I have seen an impressive number of recent immigrants with far advanced active pulmonary tuberculosis. What is being done at the moment?"

Among some of the statements made answering this query are the following:

> "Roentgenograms were made abroad wherever the Public Health Service had medical officers assigned to the consulates and x-ray facilities were available. In the course of medical examinations of visa applicants abroad, those found to have contagious tuberculosis were given class A notifications and visas were refused. . . .
>
> "A provision became effective on Sept. 1, 1948, whereby every applicant for immigration visas will have a roentgen inspection of the chest for tuberculosis and a blood test for syphilis. Those found to have either are rejected. . . . When examinations are conducted at American consulates which lack x-ray and laboratory facilities the applicant may be required to furnish a roentgenogram of the chest with a reading and a blood serologic report. . . . Temporary visitors to the United States are excluded from this requirement but may be subjected to appropriate examination when tuberculosis or syphilis is suspected."

This is a most interesting comment. Is there any reason why temporary visitors to the United States might not have tuberculosis or syphilis? And how does one suspect tuberculosis or syphilis in a fully clothed person who has not been given an examination? And what was done before Sept. 1, 1948?

Let me enumerate some facts which may throw light on this situation. I was the first medical officer of the United States Public Health Service to be attached to the consulate in Berlin, Germany, after the end of the war, being one of four such officers sent to Germany in early 1946 for the purpose of implementing President Truman's program to admit displaced persons to America. By chance, I was the only one of the four officers who had had any formal training in tuberculosis control. We were given a stethoscope, some eye charts, a case of tongue depressors and a blood pressure cuff and told to get going. In fairness to the United States Public Health Service it must be mentioned that we did not take orders from them, being "loaned" as medical advisors to the State Department. It should also be mentioned that by no means did the State Department have to comply with our suggestions. In fact, I am sure that they didn't very often and have since wondered whether it would not have been better for the American taxpayers if we all had stayed home. Consular officers in charge soon made it known that it was quantity and not quality they were interested in. No doubt somebody back in Washington was demanding action from them. They were not the least interested in making arrangements for roentgenograms or laboratory work to exclude contagious disease; they were admittedly only interested in numbers and quotas. The other three officers mentioned were sent to Stuttgart, Frankfurt and Munich. How many cases slipped by their stethoscopes through no fault of their own, we will never know. They felt just as much concern over this as did I.

As regards Berlin, every one knew that tuberculosis was rampant there and, while most of the aliens seeking visas at the consulate were previously examined by physicians of their own choice in Berlin, or by UNRRA physicians on duty in the displaced persons' camps, it was mandatory that they be examined by an authorized physician detailed to the U. S. Consulate before their final papers could be issued for travel to the United States.

The importance of this measure was soon apparent, for, without exception, all applicants for visas presented me with medical certificates attesting to their being free from disease or defects which would prevent them from earning a living. On examining them myself, the disparity between the results of my examination and that done by their own physician was astonishing. It seemed incredible that by inspection alone one could miss such defects as blindness, bilateral cataracts, missing legs and arms, huge hernias, depressed skull fractures, paralyses of extremities and the face, and mental defects. One gained the impression that the bulk of "physicians" practicing in Berlin at that time would sign any statement for a consideration. There is absolutely no reason to think this condition has changed today. I have every reason to believe that many of these so-called doctors never saw the inside of a medical school. They are reaping a harvest while thousands of competent and qualified German physicians are banned from practicing their profession because they are not yet de-Nazified, having held an honorary rank in the S.S. or S.A. Such rank was mostly commensurate with professional achievement rather than their political views. You might say it corresponded to our American College of Surgeons. All professional persons were in the same boat, whether they were school teachers, college professors, engineers, lawyers or physicians. Today, as then, a pack of cigarets or a half pound of coffee would secure from "lung specialists" an affidavit stating "no disease is present." They can probably furnish a roentgenogram of a healthy chest, too, for a small fee! Before one condemns Berlin physicians too much, it must be stated that over 40 per cent of these "diagnostic errors" which I discovered were made by UNRRA physicians, many of whom were graduates of foreign medical schools and could hardly speak English. This should be comforting to the American taxpayers, since they were all commissioned officers. This does not mean, nor am I saying, that there were not competent physicians connected with UNRRA. I am merely reporting what I saw with my own eyes in Berlin.

I took it on myself to put into operation a complete laboratory screening program in the face of tremendous opposition and personal difficulty, not the least of which was lack of both understanding and support; opposition came as well from bureaucrats interested only in quota numbers.

Where to find x-ray apparatus for the job? The Army hospital in Berlin was neither equipped, authorized nor too enthusiastic about giving roentgen examinations and doing blood tests and urinalyses on these displaced persons, since it would overtax their facilities to the breaking point. The UNRRA camp had an excellent German army 35 mm. Siemens-Reineger photofluorographic unit available and no qualified physician to read the films. They, however, would not loan it to the consulate; yet we had to screen these very same persons seeking visas to America. The Russian Army on entering Berlin had ransacked all the hospitals with the result that all existing x-ray equipment was destroyed, carried off or thrown out in the street to rust.

A most cooperative officer, Lieutenant Colonel Ray Connor of the United States Army, Public Health Branch, not only personally took me around to several German hospitals where we "borrowed" some office equipment, but directed me to Professor Horst Boenig, noted pathologist, author of several textbooks on embryology and former professor at the University of Berlin. Professor Boenig was at that time curator of Oskar-Helene Heim, a famous orthopedic hospital. Boenig had many difficulties with the Nazis during the war chiefly because he was a staunch Catholic, and, in addition, was directly responsible for keeping many young Jewish medical students from being expelled from school, much to the displeasure of certain Nazi bigwigs. Boenig, who could not speak one word of English, put his patched-up, broken-down, ancient x-ray apparatus at my disposal, provided that I could procure the necessary film and chemicals for developing, since the little he had at his disposal was badly needed by inmates of the hospital. This alone was an operation of no small magnitude, since all materials had to be procured from German sources, and in all cases by barter arrangement. Neither the State Department nor any other department was interested in this matter, and so I was entirely on my own.

This x-ray apparatus, being one of few operating in Berlin, was in operation almost eighteen hours daily. Since electric power was rationed (which meant the current might be shut off from four to eight hours daily), it was necessary to crowd much work into the hours when the current was available. The fact that one was never sure when the current would be shut off did not help matters. Long lines of ill and injured German civilians on carts, stretchers and crutches were drawn up in the dark, cold, damp, tomblike halls of the bombed-out and fire-gutted hospital, awaiting their turn for roentgen examination. The hospital owned no spare x-ray tube, and, if the one in operation ever blew out, its loss would have been a major catastrophe to the hospital and to the x-ray screening program which I had set up with my own judgment and without official sanction. I had to even purchase x-ray view boxes with American cigarets, since my superior would not authorize such purchase.

All aliens seeking visas to the United States were sent daily to Oskar-Helene Heim for a large roentgenogram of the chest. The addition of fifty or more of this group daily to the already long line of ill patients in the bombed-out hospital corridors awaiting their appointments created many unpleasant incidents. This, in spite of the fact that these aliens and displaced persons were placed at the head of the line or even taken into the x-ray room first. I have personally witnessed these displaced persons cursing and striking the stretcher patients with canes, simply because they were Germans. It was not a happy picture. All costs of this laboratory work were paid for by the local German population in Berlin, and not by those securing the examinations, nor by the State Department, nor by the United States Public Health Service. One month the burgomaster of Zehlendorf refused to pay the bill, and since the whole program would have collapsed, my assistant, a young German medical student, gave her entire life savings to Professor Boenig so that he could meet the salary of his staff. She was discharged without reason two months later!

Professor Boenig and his half-starved staff could have become wealthy or at least a bit better nourished in a short time from the bribes offered by some of these displaced persons who suspected or even knew they had tuberculosis. To the credit of Boenig and his staff, they never wavered. It was fairly common to be offered bribes of diamonds, gold, jewelry, cameras or, more important, bacon, butter, eggs and cigarets in return for a "perfect" roentgenogram of the chest. For playing the game square, Professor Boenig and his over-worked staff were roundly cursed and abused by those sent there for their free laboratory examinations. In addition, shortly before I left Berlin, Professor Boenig was given a few hours' notice to leave the hospital and cease the practice of medicine. The charge was that he had falsified his *Fragebogen*—this in spite of the fact that he had been officially cleared in the courts of the charge.

All roentgenograms taken on these displaced persons were read by myself. It would have been hazardous to trust any other local physicians. In correlating the physical and roentgen findings of several thousand examinations, it became evident what every one knows—that the stethoscope has absolutely no place in the diagnosis of pulmonary tuberculosis. When one is confronted with this class of person, symptoms are of no value, for they admit nothing and deny everything. Thus, left with a serial study of roentgenograms as a sole criterion of diagnosis (laboratory facilities, tuberculin testing, animal inoculation, gastric washings and so forth are impossible to procure or carry out) one must necessarily defer a high percentage of cases.

Deferring such cases for future examination was a particularly heart-breaking task. Threats of suicide and physical violence were common, as were threats of political pressure to have me ousted from my position. Many of these persons came into Berlin from the Russian zone at great personal peril to themselves and families. They had to carry food and their entire belongings with them, since they never for a moment imagined that they would not pass the physical examination and would therefore have to return to their former homes. They bitterly resented a physical examination because they already had a "paper" for which they had paid a pretty penny to prove that they were healthy. For some, deferment meant a trip back into the Russian zone. For women, many of whom had suffered mass rape at the hands of the Russians, it was like a death sentence. Since none of these people bothered to put by food or wood or fuel, it literally meant sending them back to nothing. In only a few instances was it possible to procure food and temporary lodging at the local UNRRA camps until sufficient time had elapsed for another roentgenogram, and then only if the subjects were Jewish. From what I could observe, the Catholics, Protestants and those of mixed marriage were left to shift for themselves. Having no one to take care of them in this situation, they could only slip back into the cesspool of human misery —to spread their tuberculosis. Jewish organizations rallied to the need of their people and provided a tuberculosis sanatorium in Switzerland.

If we are to prevent the spread of pulmonary tuberculosis to our shores, I believe the following measures would seem both sensible and practical:

1. All aliens seeking entry to this country should be given a thorough physical examination by a qualified physician who understands pulmonary tuberculosis and who has had some training in reading roentgenograms so that he will not be at the mercy of local consultants. This physician should be interested enough in his position that he will examine the disrobed patient himself and not be satisfied with looking into a bundled-up applicant's mouth after inquiring as to the number of children in the family or—which is worse—delegating the whole job to a Public Health nurse who cannot even speak the language of the applicant!
2. All persons should have roentgenograms of their own chest as an integral part of a physical examination. The stethoscope has no place in an examination of the chest of these patients.
3. Establish with Army or other official agencies a number of controlled hospital beds with available laboratory facilities for sputum analysis, gastric washings, etc., for these deferred cases. This would reduce the hardships attendant on the long waiting period for a serial roentgenographic study.
4. Settle for once and all time, by regulation or education, in the mind of the examining doctor the fact that old persons can have active tuberculosis and that age, per se, does not protect them from having it or spreading it.
5. As an alternative, change the existing immigration laws as they affect displaced persons. Let them all enter the country *with the proviso that they enter institutions immediately.* Since we are going to have to feed them no matter where they are, the taxpayer seems to be involved either way.

F. KENNETH ALBRECHT, M.D., Director
Tuberculosis Control Division
Kansas State Board of Health
Topeka, Kansas

Council on Medical Education and Hospitals

APPROVAL OF THE AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH

During the past year the American Board of Preventive Medicine and Public Health completed its organization and was officially approved by the Advisory Board for Medical Specialties and by the Council on Medical Education and Hospitals of the American Medical Association on Feb. 8, 1949. This board is the seventeenth examining board in the specialties to be approved by the Council.

The first meeting of the Board will be held in Washington, D. C., April 25-26, 1949, to review applications submitted by the Interim Board on Preventive Medicine and Public Health comprising the surgeons general of the Army, Navy, Air Forces and Public Health Service. At this meeting also consideration will be given to the Founders' Group. The first examination of the Board will be held on May 14-16, 1949, in Washington, D. C.

The chairman of the Board is Dr. Walter L. Bierring, Des Moines, and the secretary-treasurer, Dr. Ernest L. Stebbins, 615 North Wolfe Street, Baltimore.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* Various Centers. June 20-22, Sept. 12-14. *Part II.* April 25-26. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology, Inc. *Written.* Various Centers. July 15: Final date for filing application is April 15. *Oral.* April 10-14 and Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

American Board of Dermatology and Syphilology: *Oral.* New York City, April 1-3. Sec., Dr. George M. Lewis, 66 East 66th Street, New York 21.

American Board of Internal Medicine: *Oral.* Philadelphia, June 1-3. *Written.* Oct. 17. Final date for filing application is May 1. Asst. Sec.-Treas. Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

American Board of Neurological Surgery: *Oral.* Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

American Board of Obstetrics and Gynecology, Inc.: *Oral.* Chicago, May 8-14. Final date for filing application is April 1. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

American Board of Ophthalmology: *Oral.* New York, June 11-15; St. Louis, Oct. 15-19; Boston, December. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

American Board of Orthopaedic Surgery. *Part I.* New York City, April 22-23; Atlanta, Ga., April 29-30; Indianapolis, May 6-7 and Denver, May 13-14. *Part II.* New York City, Jan. 1950. Final date for filing application for Part II is Aug. 15. Address: Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14, Calif.

American Board of Otolaryngology: New York, May 11-14; Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

American Board of Pathology: Boston, April 12-13. Sec., Dr. Robert A. Moore, 507 S. Euclid Ave., St. Louis 10, Mo.

American Board of Pediatrics: *Oral.* Baltimore, May 7-9. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Rd., Rosemont, Pa.

American Board of Physical Medicine. Atlantic City, June 4-5. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

American Board of Plastic Surgery: Examinations are given in June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

American Board of Preventive Medicine and Public Health: Washington, D. C., May 14-16. Sec.-Treas., Dr. Ernest L. Stebbins, 615 North Wolfe St., Baltimore.

American Board of Psychiatry and Neurology, Inc. December, New York City. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Radiology. Atlantic City, June 2-4. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery: *Written.* Various Centers, October. Final date for filing application is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

American Board of Urology: Feb. 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

Arkansas: * Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 9-10. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

California: *Examination.* San Francisco, June 20-23. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

Colorado: * *Endorsement,* Denver., April 5. *Written,* Denver, June 20-22. Sec., Dr. W. W. King, 831 Republic Bldg., Denver 2.

Delaware: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

District of Columbia: * *Written,* Washington, May 9-10. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., Washington.

Florida: * *Examination,* Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

Georgia: *Examination.* June 8-9, Atlanta and Augusta. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Guam: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam. % F.P.O., San Francisco, Calif.

Hawaii: * *Examination.* Honolulu, July 11-14. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

Idaho: Boise, July 11-13. Sec., Miss Estella S. Mulliner, Bureau of Occupational Licenses, 355 State House, Boise.

Illinois: Chicago, April 12-14. Supt. of Registration, Mr. Fred W. Ruegg, Capitol Bldg., Springfield.

Indiana: *Examination.* Indianapolis, June 21-23. Sec. Board of Medical Registration and Examination. Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

Iowa: * *Examination.* Iowa City, June 13-15. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

Kansas: Kansas City, June 1-2. Sec., J. F. Hassig, 905 North 7th St., Kansas City, Kans.

Kentucky: *Examination.* Louisville, June 15-17. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville 2.

Maryland: *Examination.* Baltimore, June 21-24. Sec., Dr. Lewis P. *Gundry, 1215 Cathedral St., Baltimore.* *Homeopathic.* Baltimore, June 14-15. Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

Minnesota: * Minneapolis, April 19-21. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: Jackson, June 21-22. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

Missouri: *Examination.* St. Louis, May 30-31 and June 8-10. Exec. Sec., Mr. *John A. Hailey, Box 4, Jefferson City.*

Montana: Helena, April 4-6. Sec., Dr. O. G. Klein, First National Bank Building, Helena.

Nebraska:* *Examination.* Omaha, June 6-8. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

Nevada: Carson City, May 2. Sec., Dr. G. H. Ross, 112 N. Curry Street, Carson City.

New Jersey: *Examination.* Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

New Mexico: * Santa Fe, April 11-12. Sec., Dr. V. E. Berchtold, 141 Palace Ave., Santa Fe.

New York: Albany, Buffalo, New York and Syracue, June 28-July 1, Sec., Dr. Jacob L. Lochner, 23 South Pearl St., Albany.

North Carolina: *Endorsement.* Pinehurst, May 9. *Examination.* Raleigh, June 23-25. Sec., Dr. Ivan Procter, 226 Hillsboro St., Raleigh.

North Dakota: * *Written,* Grand Forks, July 5-7. *Reciprocity,* Grand Forks, July 8. Sec., Dr. C. J. Glaspel, Grafton.

Ohio: *Endorsement.* Columbus, April 5. *Written.* Columbus, June. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Oklahoma: * Oklahoma City, June 8-9. Sec., Dr. Clinton Gallaher, 813 Graniff Bldg., Oklahoma City.

Oregon: * *Endorsement.* Portland, April 29-30. *Examination.* Portland, July. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

Pennsylvania: *Examination.* Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.

Puerto Rico: San Juan, Sept. 6-10. Sec., Dr. Luis Cueto Coll, Box 3717, Santurce.

Rhode Island:* *Examination.* Providence, April 7-8 and July 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Carolina: *Examination.* Columbia, June 27-29. *Endorsement.* Columbia, March 7, April 4, May 2, June 27-28, Aug. 1, Sept. 5 and Oct. 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

South Dakota: * *Examination.* Pierre, July 19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

Texas: *Examination.* Austin, June 16-18. Sec., Dr. M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2.

Utah: *Examination.* Salt Lake City, July. Sec., Dept of Registration. Miss Rena B. Loomis. 324 State Capitol Bldg., Salt Lake City.

Virginia: *Examination.* Richmond, June 17-18. *Reciprocity.* Richmond, June 16. Dr. K. D. Graves, 631 First St., S.W., Roanoke.

Washington: * Seattle, July. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

West Virginia: Charleston, April 7-9. Sec., Dr. N. H. Dyer, State Capitol, Charleston 5.

Wisconsin: * *Examination.* Milwaukee, June 28-30. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

Wyoming: Cheyenne, June 20. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

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* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arkansas: *Examination.* Little Rock, May 3. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.

Colorado: *Examination.* Denver, June 1-2. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

Connecticut: New Haven, June 11. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., New Haven 10.

District of Columbia: *Examination.* Washington, April 18-19. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., Washington.

Florida: *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

Iowa: *Examination.* Des Moines, April 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Michigan: *Examination.* Detroit and Ann Arbor, May 13-14. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

Minnesota: *Examination.* April 4, June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, *105 Millard Hall, Univ. of Minnesota,* Minneapolis.

OKLAHOMA: April 15. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: Portland, June 18, Sept. 3 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

SOUTH DAKOTA: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St., Yankton.

TENNESSEE: Memphis, July 8-9. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

WISCONSIN: Madison, April 2. Milwaukee, June 4. Sec., Prof. W. H. Barber, Ripon College, Ripon.

Medical Motion Pictures

MOTION PICTURES ON NURSING EDUCATION

A Selected List of Motion Pictures and Slidefilms for Nursing Education has been prepared by Loretta E. Heidgerken, R.N., Ed.D., assistant professor of nursing education, The Catholic University of America, Washington 17. It contains a brief discussion of the intelligent utilization of motion pictures and slidefilms for nursing education. Approximately 210 motion pictures are classified according to subject and title including a brief abstract of each film. The slidefilms are classified according to title only. Copies of the list are procurable on purchase (price, $1) from Audio-Visual Center, Indiana University, Bloomington, Ind.

FILM REVIEWS

Animated Hematology—Bone Marrow. 16 mm., color, silent, 1,600 feet (1 reel), showing time forty-five minutes (sound speed). Produced in 1948 through a grant from the Armour Laboratories and edited by John H. Glynn, M.D., and Florian E. Schmidt, M.D., of their professional staff, in collaboration with Robert W. Keeton, M.D.; Carroll L. Birch, M.D., and Louis R. Limarzi, M.D., Department of Medicine, University of Illinois. Procurable on loan or purchase from Armour Laboratories, 1425 West Forty-Second Street, Chicago.

This motion picture presents current knowledge of normal and pathologic bone marrow in a clear and authoritative manner. The development of the subject is arranged under appropriate headings beginning with general considerations of normal bone marrow and progressing through embryology and development of bone marrow, technic of bone marrow study and finally pathology of bone marrow.

The picture summarizes the diagnosis and treatment of disorders of the blood and blood-forming organs. Emphasis is placed on the indications for sternal marrow aspiration and the dangers and limitations of this type of examination.

This film should be especially interesting to internists, residents and interns and would serve as a valuable supplement in courses in hematology for medical and postgraduate students.

Generally speaking the photography ranges from good to excellent. Some of the photomicrographs are only fair; however, others are especially good. The production is rather long and contains a great amount of material to be absorbed in one sitting.

They Live Again. 16 mm., black and white, sound, 675 feet (1 reel), showing time eighteen minutes. Prepared in 1944 by the British Council, London. Produced by the Gaumont British Instructional Ltd. Procurable on rental or purchase from British Information Services, 30 Rockefeller Plaza, New York 20, or local office.

This is a shortened version of the British motion picture entitled "Accident Service" (reviewed in THE JOURNAL Jan. 31, 1948, p. 348, and announced in THE JOURNAL May 8, 1948, p. 213, as a motion picture added to the American Medical Association Motion Picture Library) illustrating the program at a British Rehabilitation Center for complete restoration of injured coal miners. It portrays the story of a miner from the time of his injury when he received a compression fracture of a spinal vertebra until his return to work six months later.

The patient is shown being brought out of the mine after administration of first aid. He is transported to the accident ward of a general hospital and placed in suspension in a padded sling; later he is placed in a plaster cast, which he wears for four months. The film illustrates how the social service worker sets the patient's mind at ease, how the "works" physician follows through with his case and how physical therapy is started with exercises while the patient is still in the cast and with general exercises while the patient is in bed. After one week the patient attempts to walk, and this is followed by exercises in the hospital gymnasium, by gardening and outdoor exercises.

Progress continues, and at the end of four months the patient is sent to a special rehabilitation center in the country. Here he follows a planned scheme of activities which includes recreational activities such as billiards, darts, swimming, use of the library and attendance at lectures and concerts. In conjunction with this recreation he follows a routine of corrective exercises and occupational and recreational therapy which soon makes him "strong in mind and body." The patient's progress is followed by the same group of physicians who guided his care in the hospital, and after six months he is finally dismissed "once again a useful member of the community."

This film depicts the modern developments in physical medicine and rehabilitation clearly and concisely and is, in some respects, an improvement on the longer version. It is highly recommended to all physicians interested in rehabilitation and is suitable for general audiences.

Sclerotherapy. 16 mm., color, silent, 1,600 feet (1 reel), showing time sixty-six minutes. Prepared in 1948 by and procurable on loan fom H. I. Biegeleisen, M.D., 510 Madison Avenue, New York.

This motion picture presents an injection treatment in a variety of cases: varicose veins, "lymph legs," ganglion, hernia, hydrocele, hemorrhoids, pruritus ani and pilonidal sinuses.

The presentation is not recommended for general educational purposes in that it is simply a record of some of the author's cases. There is no discussion of the pathology, diagnosis, indications or contraindications for sclerosing therapy, and end results are not clearly shown. There is a rather indiscriminate use of sclerosing solutions with no mention of the type and amount of solution used and no recognition of the limitations of this form of treatment. Some of the terminology is different from that generally used and should have been explained.

Generally speaking, photography is poor to good. In several scenes there is a poor selection of background, which appears to be a black glossy stucco wall, and the high lights are somewhat distracting. In other scenes a blood pressure apparatus can be seen in the background. Closeup pictures do not show the vein in detail or the injection technic. In a few scenes there is considerable camera movement. In some cases the camera angles are not well selected and the physician's hands or arms obstruct the field. The film is much too long. A great amount of the material could be telescoped considerably. It is difficult to evaluate the end results since there is a variation of exposures in the "before and after" pictures. Several follow-up pictures are overexposed.

The Function of the Ear in Health and Disease. 16 mm., color, sound, 1,225 feet (1 reel), showing time thirty-two minutes. Prepared in 1948 and produced by H. G. Kobrak, M.D., Ph.D.; J. E. Hind, B.S., E.E., and R. B. Miller, B.A., M.D., Otological Laboratories of the Division of Otolaryngology, University of Chicago, through a grant for Postgraduate Studies in Otology by the Auralgan Research Division, Doho Chemical Company. Procurable on loan from Doho Chemical Company, 100 Varick Street, New York 13.

The film begins with a brief historical review of the early anatomists who described the hearing mechanism and the early physiologists who described its function.

The actual vibrations of the tympanic membrane and ossicular chain in response to sound vibrations have been photographed with the use of stroboscopic illumination consisting of an interruption of the light beam which produces an illusion of slow motion. Several types of ear diseases are depicted, in some of which there is interference with the vibratory movements of the ossicular chain. The response of the hearing mechanism to a hearing aid is demonstrated, and the response of the tympanic membrane and ossicular chain to orchestral music has been photographed.

The clinical material is interesting but incomplete from the point of covering the important types of hearing loss. Some of the labeling could be improved by placing the labels at one side of the illustration rather than over the structure. The film should be of particular interest to otologists; however, it is suitable for showing to general practitioners, medical students, nurses and laymen interested in problems of hearing.

The difficult photographic problems involved in this picture are well resolved by the author.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

18:117-140 (Nov.) 1948

*Use of Antibacterial Agents in Viral Respiratory Tract Infections. J. B. McLester, C. W. C. Moore II and N. K. Weaver.—p. 117.

Diabetes in Relation to Other Medical Problems. G. O. Segrest and S. Eichold.—p. 121.

Specialization in General Practice of Medicine. R. R. Kracke.—p. 124.

Antibacterial Agents in Viral Respiratory Infections.—McLester and his associates point out that the variable treatments given to patients with febrile diseases of the respiratory tract often include sulfonamide compound, penicillin, or both, despite the fact that neither of these antibacterial agents has any theoretic value in a virus disease. They hesitated to ignore a generally followed therapeutic custom in the treatment of the patients under their supervision at the Jefferson-Hillman Hospital in Birmingham, but decided to analyze the results obtained in 569 patients who were treated for disorders of the upper respiratory tract during the three years from 1945 to 1947, inclusive. They conclude that sulfonamide compounds and penicillin are of no value in the primary treatment of infections of the respiratory tract that are variously called cold, grip, influenza, viroid, nasopharyngitis, acute bronchitis, etc. They have no data on the effectiveness of the drugs in the prevention of complications but conclude that leukocytosis alone is not an indication of the presence of a complication that indicates treatment with these agents. In view of this lack of therapeutic value, plus the known dangers of the drugs, they felt that these antibacterial agents should be given to patients with infections of the respiratory tract only when there is reasonable evidence of infection with bacteria sensitive to such therapy.

American Heart Journal, St. Louis

36:481-640 (Oct.) 1948

Coronary Artery Disease in Men Eighteen to Thirty-Nine Years of Age: Report of 866 cases, 450 with Necropsy Examination. W. M. Yater, A. H. Traum, W. G. Brown and others.—p. 481.

Effect of Intravenous Aminophylline on Capacity for Effort Without Pain in Patient with Angina of Effort. H. Bakst, M. Kissin, S. Leibowitz and S. Rinzler.—p. 527.

Correlation of Electrocardiographic and Pathologic Findings in Anteroseptal Infarction. G. B. Myers, H. A. Klein and B. E. Stofer. —p. 535.

Effect of Intravenous Procaine on Electrocardiogram of Dogs. M. H. Uhley and M. Wilburne.—p. 576.

*Hitherto Undescribed Neurologic Manifestations of Digitalis Toxicity. R. C. Batterman and L. B. Gutner.—p. 582.

Acute Pericarditis of Benign Type. R. B. Logue and M. H. Wendkos. —p. 587.

*Acute Myocardial Infarction: Detailed Study of Dicumarol Therapy in 75 Consecutive Cases. H. Greisman and R. M. Marcus.—p. 600.

Neurologic Manifestations of Digitalis Toxicity.—Batterman and Gutner point out that the involvement of the central nervous system in digitalis intoxication has been recognized and frequently reported in the literature. They cite various types of visual disturbances, vertigo, headache, drowsiness, malaise, irritability and convulsions. They report observations on 10 patients who exhibited peripheral and cranial nerve symptoms due to overdosage with digitalis products. These complaints occurred in approximately 9 per cent of the patients manifesting toxicity from digitalis. The gastrointestinal symptoms have generally been considered the most typical of digitalis toxicity, but the authors have gained the impression that neurologic disturbances not only may occur earlier than the gastrointestinal symptoms, but may also be the only manifestation of digitalis toxicity. The neuralgic type of pain usually involved the lower third of the face simulating the syndrome of trigeminal neuralgia. The pain was characterized usually as a dull aching in the teeth or as a sharp and stabbing pain throughout the mandible or maxilla, or both. Other areas involved with typically neuralgic "shooting pains" were the upper extremity, lower lumbar area with posterior thigh radiation, and calf muscles. Parasthesias, such as tingling in the fingers and burning sensations in the feet, were also observed. The type of digitalis preparation administered apparently played no role in the occurrence of these neuralgic complaints. Toxic manifestations were noted with digitalis leaf, digitoxin, digoxin, gitalin and squill from Urginea maritima and that from Urginea indica. It is probable that the other cardiac glycosides when used in toxic doses will produce the same type of toxicity.

Dicumarol® Therapy in Myocardial Infarction.—Greisman and Marcus used dicumarol® in the management of 75 consecutive ward patients with acute myocardial infarction. The mortality rate was 9 per cent and the incidence of thromboembolic lesions was 4 per cent. These results reveal a decided improvement over the results obtained in a control series of 100 patients with acute myocardial infarction treated with conventional therapy. In the latter series there was a mortality rate of 35 per cent and an incidence of thromboembolic lesions of 21 per cent. There were no serious complications attributable to the use of dicumarol.®

American Journal of Clinical Pathology, Baltimore

18:757-834 (Oct.) 1948

*Hemolytic Anemia with Hemoglobinuria. D. Stats, L. R. Wasserman and N. Rosenthal.—p. 757.

Amyloid "Tumors" of Larynx, Trachea and Bronchi: Histologic Study of Fifteen Cases. D. B. Stark and J. R. McDonald.—p. 778.

Concept of Hepatic Clearance. A. E. Lewis.—p. 789.

Appendiceal Lesions in Prodromal Stage of Measles. M. A. Simon and H. C. Ballon.—p. 796.

Coronary Sclerosis in Infancy: Report of Three Autopsied Cases, Two in Siblings. M. L. Menten and G. H. Fetterman.—p. 805.

*Neurologic Sequelae in Macrocytic Anemia of Gastrointestinal Origin Following Folic Acid Therapy. L. M. Meyer.—p. 811.

Hemolytic Anemia with Hemoglobinuria.—During the past ten years Stats and his co-workers had an opportunity to study a large number of cases of hemoglobinuria. Four categories were encountered, namely, the Marchiafava-Micheli syndrome of paroxysmal nocturnal hemoglobinuria, cases caused by cold hemagglutinins, or by drugs and an idiopathic variety. They stress the importance of spectroscopy of plasma and urine and cite the main characteristics and differentiation of the absorption bands for the common hemoglobin derivatives. Exclusive of cases of chronic disease (mainly the Marchiafava-Micheli syndrome), hemoglobinuria was of short duration. The detection of persistent hemosiderinuria in the diagnosis of the Marchiafava-Micheli syndrome and the generally unexplored hemosiderinuria of the other hemoglobinurias are important. The relatively infrequent occurrence of serious impairment of renal function, especially in the chronic hemoglobinurias, is also pointed out. The authors indicate the serologic tests which should be performed in cases of hemoglobinuria in order to arrive at an accurate diagnosis. When anemia supervened, large and frequent blood transfusions were required. The authors believe that splenectomy is contraindicated in the hemoglobinemias or hemoglobinurias. In view of the reactions which followed blood transfusions in the Marchiafava-Micheli syndrome, a minimal number of transfusions should be given in such cases.

Neurologic Sequelae in Anemia After Folic Acid Therapy.—Meyer presents the case of a man, who at the age of 16, in 1926, was treated for macrocytic hyperchromic anemia, which developed as the result of ulcerative colitis. At this time the anemia responded to liver therapy. Repeated recurrences of macrocytic anemia after intestinal disturbances between the years 1928 to 1939 responded moderately well to diet and oral and parenteral liver therapy. In 1939 the patient was subjected to resection of the terminal ileum and ascending colon and regional ileitis was detected in the surgical specimen. A year later the patient again had hyperchromic anemia which responded to injection of liver extract. The injections were followed by severe urticaria and occasionally by vasomotor collapse. After that the patient's blood status was maintained for several years with blood transfusions, but these too caused febrile reactions. Treatment with folic acid for thirteen months was followed by the development of peripheral neuritis and combined system disease. Successful desensitization to liver extract and treatment with this drug resulted in complete remission of the neurologic disease and return to health.

American Journal of Medicine, New York

5:629-782 (Nov.) 1948

Unknowns in the Biology of Syphilitic Infection. P. D. Rosahn.—p. 631.
Current Concepts of Immunity in Syphilis. H. J. Magnuson.—p. 641.
Epidemiology of Syphilis with Particular Reference to Contact Investigation. E. G. Clark.—p. 655.
Biologic False Positive Reaction in Serologic Tests for Syphilis. H. Neurath.—p. 670.
Nationwide Results in Treatment of Early Syphilis with Penicillin. F. W. Reynolds.—p. 679.
Penicillin Treatment of Early Syphilis. E. W. Thomas.—p. 687.
Prevention and Treatment of Prenatal Syphilis. N. R. Ingraham Jr. p. 693.
Penicillin in Benign Late and Visceral Syphilis. H. A. Tucker.—p. 702.
Significance of Spinal Fluid Findings in Neurosyphilis. B. Dattner. —p. 709.
Current Status of Penicillin Therapy in Neurosyphilis. H. C. Solomon. —p. 712.
*Venous Thrombosis and Pulmonary Embolism in Tuberculosis. D. W. Zahan and Charlotte T. Peirce.—p. 716.
Paroxysmal Hypertension Associated with Tabes Dorsalis: Report of 3 Cases. I. L. Bennett Jr. and A. Heyman.—p. 729.

Venous Thrombosis and Pulmonary Embolism in Tuberculosis.—Zahan and Peirce say that as the result of the recent wave of adverse criticism directed against bed rest as a therapeutic method, the surgeon, cardiologist, psychiatrist, obstetrician and, more recently, the phthisiologist have all deprecated its widespread use. This revolt against one of the oldest and most widely accepted therapeutic measures was occasioned by the loss of life caused by pulmonary embolic accidents. The danger of thromboembolism has been used by some internists and phthisiologists as an argument against the application of strict bed rest in the treatment of tuberculosis. A review of 3,672 autopsies at Fitzsimmons General Hospital of which 1,700 were on tuberculous subjects reveals an uncorrected incidence of thromboembolism in the tuberculous group of 2.1 per cent and a corrected incidence of 1.5 per cent. This incidence is less than one fifth of the figures reported in the literature for nontuberculous diseases. From this the authors deduce that the incidence of death from embolism is so low in tuberculosis as not to constitute a contraindication to treatment with strict bed rest.

American Journal of Ophthalmology, Chicago

31:1365-1538 (Nov.) 1948

Symposium: Corneal Transplantation

I. Selection of Cases. R. T. Paton.—p. 1365.
II. Technic. J. M. McLean.—p. 1370.
III. Complications. R. Castroviejo.—p. 1375.
IV. Physiopathology. A. E. Maumenee and W. Kornblueth.—p. 1384.
*V. Results. W. C. Owens, J. J. Frank, B. Leahey and others. —p. 1394.
Respiration of Stored Cornea. T. D. Duane.—p. 1400.
Some Factors in Surgical Treatment of Vertical Deviations. J. H. Dunnington.—p. 1404.
Antistine in Ocular Allergy. P. Hurwitz.—p. 1409.
Occlusion of Central Retinal Artery: Clinicopathologic Study. A. L. Kornzweig.—p. 1421.
Effect of Muscular Exercise on Dark Adaptation. J. P. Wendland. —p. 1429.
Postoperative Hypertropia. R. G. Scobee.—p. 1437.
Some Methods of Lid Repair and Reconstruction: VI. Reformation of Inferior Fornix. S. A. Fox.—p. 1441.
Postvaccinial Ocular Syndrome. E. Rosen.—p. 1443.
Fogging Method of Refraction: Comparative Analysis. J. M. O'Brien and R. E. Bannon.—p. 1453.
Binocular Refraction. P. W. Miles.—p. 1460.
Treatment of Superficial Corneal Injuries. A. R. Sherman.—p. 1467

Results of Corneal Transplantation.—Owens and his associates point out that statistical analysis of the results of corneal transplantation has been difficult because of the lack of a sufficiently large number of cases in any one clinic. To overcome this difficulty the American Academy of Ophthalmology made arrangements for a group of clinics to pool their material. Data have been collected on 417 corneal transplant operations. The graft remained clear in 36.5 per cent of the cases. The percentage of clear grafts varied greatly with the cause of the corneal opacity. The best results were obtained in cases of keratoconus (65.2 per cent), hereditary dystrophy (58.8 per cent), interstitial keratitis (49.0 per cent) and nonspecific inflammatory scars (46.9 per cent). Poor results were obtained in cases of active keratitis or corneal ulcer (23.1 per cent), scars from chemical burns (20.8 per cent), trauma (18.2 per cent) or gonococcus ulcers (8.7 per cent). The larger the size of the cornea and the greater the extent of corneal vascularization, the less were the chances of obtaining a clear graft. Of 229 patients with preoperative visual acuity of 20/200 or less, 36.2 per cent obtained a postoperative vision of 20/100 or better. The visual results after corneal transplantations in patients with preoperative visual acuity of 20/100 or better do not warrant the risk of operation.

American Journal of Public Health, New York

38:1499-1634 (Nov.) 1948

Cultivating Our Human Resources for Health in Tomorrow's World. Martha M. Eliot.—p. 1499.
Ailments of Health Departments. Florence R. Sabin.—p. 1508.
Twenty-Five Years in Maternal and Child Health. F. J. Underwood. —p. 1512.
Cave Sickness: New Disease Entity? A. M. Washburn, J. H. Tuohy and E. L. Davis.—p. 1521.
*Schick Testing and Diphtheria Immunization of United States Troops in Europe. H. A. Schulze.—p. 1527.
Sanitary Significance of Cocci in Swimming Pools. Cassandra Ritter and E. L. Treece.—p. 1532.
Origins of Public Health in United States. J. B. Blake.—p. 1539.
Appraising Medical Care Program. S. Etkin.—p. 1551.
Use of Medical-Social Service by Country Health Department: Account of Demonstration in Anne Arundel County, Maryland. W. J. French and Geneva Wiser.—p. 1555.
New Approach to Food Handler Training. J. L. Rowland and J. H. Fritz.—p. 1561.
Value of Routine Fluorograms as Measure for Detecting Cardiac Abnormalities: Report of Findings on 14,235 Routine (35 mm.) Photofluorograms. G. Berenson.—p. 1564.
Even with the Law on Our Side. R. P. Fowler.—p. 1569.

Diphtheria in U. S. Troops in Europe.—Schulze reports the results of the Schick test and Schick test control performed on 42,171 U. S. soldiers in the European theater during the period from December 1946 to February 1947. About 30 per cent of the persons aged less than 35 years were Schick positive or combined reactors. There was a definite rise in the percentage of Schick-positive persons from the lower to the higher age groups. This was due to a smaller proportion of persons in the higher age groups who were immunized in childhood, because of a longer interval in the older age groups during which immunity acquired in childhood could have worn off, or a reduction of the frequency of booster action because of the more sedentary habits of older age groups. Reactions to the control material occurred with the same frequency in the Schick-negative and Schick-positive group. There was an increase in the proportion of pseudo and combined reactors from the lower to the higher age groups. Schick-positive and Schick-positive combined reactors were immunized with fluid, toxoid preserved with formaldehyde, according to the following schedule: 0.1 cc., 0.5 cc., 1.0 cc. and 1.0 cc. The 0.5 cc. dose was given two days after the 0.1 cc. test dose. The other doses were given at three week intervals. In Schick-positive-control negative persons severe reactions consisting of local edema and induration more than 6 cm. in diameter or a marked constitutional reaction with a temperature over 101 F. occurred in 3.1 per cent of those taking the first dose and less frequently thereafter. Reactions in the Schick-positive-control positive group were about three times as frequent. During the twelve month period April 1947 to March 1948, following the program the diphtheria rate was 0.7 per thousand as compared with a rate of 4.8 for the twelve month period immediately preceding the program. Practically all cases that have occurred since the completion of the program were in those who had not been immunized at all or had not completed the immunization series because of administrative neglect. Diphtheria immunization of adults with fluid toxoid according to the schedule given is a practical and safe procedure.

American Review of Tuberculosis, New York

58:375-478 (Oct.) 1948

Pulmonary Affections of Occupational Origin. R. T. Johnstone.—p. 375.
*Streptomycin in Preparation for Collapse Therapy. J. D. Steele Jr. and T. R. Murphy.—p. 393.
Monaldi Catheterization of Tuberculous Cavities: Review of 34 Cases. Wm. A. Wilbur.—p. 402.
*Bronchoscopy in Pulmonary Tuberculosis: Study of Post-Bronchoscopic Increase of Disease. E. O. Coates Jr.—p. 412.
Modifications of Tuberculous Lesions in Patients Treated with Streptomycin. C. M. Flory, J. W. Correll, J. G. Kidd and others.—p. 421.
*Anatomic Change in Tuberculosis Following Streptomycin Therapy. O. Auerbach and G. N. Stemmermann.—p. 449.
Clinical Studies on Allergy to Tuberculin Following Primary Tuberculous Infection: Clinical Value of Recognizing State of Secondary Negative Allergy. R. T. Ellison.—p. 463.

Streptomycin in Collapse Therapy.—Steele and Murphy administered 0.75 Gm. to 2.0 Gm. of streptomycin daily in three divided doses in twenty-four hours to 17 patients, 13 women and 4 men between the ages of 17 and 54 years, with predominantly exudative pulmonary tuberculosis, in preparation for collapse therapy. The disease of 13 of these patients was progressive when treatment with streptomycin was instituted. The average preparatory period of treatment with streptomycin was 78.8 days. Twelve patients were prepared for thoracoplasty, 3 for intrapleural pneumothorax and 2 for extrapleural pneumonolysis. In addition to the preparatory period, all patients received streptomycin during and after the institution of collapse therapy. Streptomycin not only prepared the exudative lesions for collapse therapy but also halted the progression of the disease in 13 of the 17 patients. Without its use most of the patients would never have been favorable candidates for collapse therapy and some would probably have died from progression of their disease.

Postbronchoscopic Increase of Tuberculosis.—According to Coates, in a series of 473 bronchoscopies in 233 patients who had tubercle bacilli in their sputum at some time during their residence in the Trudeau Sanatorium, the incidence of roentgenographic increase of pulmonary tuberculosis in the two months immediately following bronchoscopy was no greater than that in other two month periods before bronchoscopy. Bronchoscopic observations in 73 bronchoscopies followed within two months by roentgenographic increase, as compared with those in 400 cases not showing such a postbronchoscopic increase, revealed essentially the same percentage of active endobronchial tuberculosis in the two groups. In a group of 59 patients who had roentgenographic evidence of increase of disease within two months after bronchoscopy, the percentage of cases of far advanced disease was no greater than in the remaining 174 patients who showed no such postbronchoscopic increases. The effect of progression of the disease before bronchoscopy on the course immediately after bronchoscopy was investigated in the group of 149 patients undergoing bronchoscopy only once. Thirty-five of these patients showed roentgenographic evidence of progression within two months preceding bronchoscopy, while 114 did not. In these two groups the incidence of roentgenographic increases in the two months following bronchoscopy was essentially the same.

Anatomic Changes Following Streptomycin.—Auerbach and Stemmermann performed necropsies on the cadavers of 7 men between the ages of 19 and 53 with pulmonary tuberculosis, who had died after receiving streptomycin for sixty to two hundred and ten days. The postmortem observations revealed that streptomycin is an aid in the healing of tuberculosis. It has a much greater effect on tuberculous foci in the superficial surfaces than on the foci in solid organs. The perifocal reaction surrounding acinous foci is rapidly and extensively resolved, thus diminishing the amount of fibrosis which would ordinarily occur in this zone. Tuberculous foci in the lung show a greater tendency to heal than in untreated patients. The contrast of the action of the drug on solid organs and superficial surfaces is best seen in acute generalized miliary tuberculosis, in which the healing changes in solid organs lag behind those in the lungs. The greatly decreased incidence of ryngeal and intestinal tuberculosis is also attributed to greater ling on superficial surfaces. The highly satisfactory clinical onse observed in tuberculous meningitis seems to give her evidence of the action of streptomycin on superficial surfaces. Streptomycin does not appear to prevent dissemination of the disease either through the bronchial or lymphohematogenous routes, but, after such disseminations occur, the drug stimulates their more rapid healing.

Archives of Otolaryngology, Chicago

47:551-704 (May) 1948

*Lempert Decompression Operation for Hydrops of Endolymphatic Labyrinth in Ménière's Disease. J. Lempert.—p. 551.
Bacterial Flora of Nasopharynx in Relation to Common Cold. J. A. Kolmer, A. Bondi Jr. and Clare Schellinger.—p. 571.
Cholesteatoma and Chronic Otitis: Etiologic Problems. M. Diamant.—p. 581.
Test Findings Before and After Fenestration of Labyrinth. E. H. Campbell and D. Macfarlan.—p. 590.
Physiologic Surgery of Nares. S. Fomon, A. G. Silver, J. G. Gilbert and V. R. Syracuse.—p. 608.
Elongated Styloid Process: Further Observations and New Syndrome. W. W. Eagle.—p. 630.
Lymphoid Hyperplasia of Epipharynx: New Method for Control. S. E. Dalton.—p. 641.
Acute Nonspecific Infections of Parotid Gland: Review. O. E. Anderson.—p. 649.
Barrier Membrane of Cochlear Aqueduct: Histologic Studies on Patency of Cochlear Aqueduct. J. G. Waltner.—p. 656.

Decompression Operation for Hydrops of Labyrinth in Ménière's Disease.—Lempert points out that both the clinical picture and the histologic aspects of Ménière's disease permit the conclusion that it is a disease limited to the internal ear and that both the vestibular and the cochlear portion thereof are involved. It is therefore logical to assume that by effecting degeneration of both the vestibular and the cochlear part of the endolymphatic labyrinth in a case of monaural Ménière's disease, and thus preventing the recurrence of endolymphatic hydrops, it should be possible permanently to relieve the patient of the vertigo, which is vestibular in origin, and the tinnitus, which is probably of cochlear origin. The author describes a new technic for effecting atraumatic and aseptic degeneration of the endolymphatic labyrinth. The removal of the stapes and the round window membrane without traumatizing either the temporal bone or the endolymphatic labyrinth when executed under sterile precautions results in aseptic degeneration of the entire endolymphatic labyrinth and of the organ of Corti. Of the 10 patients who were operated on with this technic, 9 were freed from both vertigo and tinnitus. One was free of vertigo but not of tinnitus, though the intensity of the tinnitus even in this case has greatly diminished.

Bulletin of Johns Hopkins Hospital, Baltimore

83:367-462 (Nov.) 1948

Cultural Differentiation of Paracolon Bacilli. Isabelle G. Schaub.—p. 367.
Irradiation of Lymphoid Tissue in Diseases of Upper Respiratory Tract. D. F. Proctor, L. M. Polvogt and S. J. Crowe.—p. 383.
Renal Function Before and After Surgical Resection of Coarctation of Aorta. J. Genest, E. V. Newman, A. A. Kattus and others.—p. 429.
Physiologic Studies in Congenital Heart Disease: VI. Adaptations to Anoxia in Congenital Heart Disease with Cyanosis. R. J. Bing, L. D. Vandam, J. C. Handelsman and others.—p. 439.

California Medicine, San Francisco

69:333-408 (Nov.) 1948

What's New in Communicable Diseases. E. B. Shaw.—p. 333.
What's New in Field of Immunization. J. J. Miller Jr.—p. 336.
Experimental Use of Testosterone Compounds in Premature Infants. E. K. Shelton and J. S. Mark.—p. 339.
Some Diagnostic and Therapeutic Technics in Cystic Fibrosis of Pancreas. G. E. Gibbs.—p. 341.
Important Factors in Diagnosis of Patent Ductus Arteriosus. S. J. Robinson.—p. 345.
Metatarsus Varus. Frances Baker.—p. 346.
What's New in Treatment of Erythroblastosis. H. Kirchdoerfer.—p. 349.
*Place of Non-Operative Treatment in Therapy of Perforated Peptic Ulcer. R. Cohn and C. Mathewson Jr.—p. 351.
Management of Acute Peritonitis. C. J. Berne.—p. 357.
Role of Tissue Permeability with Particular Reference to Blood-Brain Barrier in Diseases of Central Nervous System. R. B. Aird.—p. 360.
Management of Acute and Chronic Pulmonary Abscess. P. C. Samson and D. J. Dugan.—p. 364.
Analysis of Fatal Cases of Poliomyelitis. W. M. Edwards.—p. 367.
Dangers of Local External Heat and Trauma to Ischemic Tissues in Peripheral Vascular Diseases. R. J. Popkin.—p. 374.

Nonoperative Treatment of Perforated Peptic Ulcer.—Cohn and Mathewson point out that although surgical closure of the perforation is usually successful, the treatment of the patient with long-standing perforation or of one with generalized peritonitis is far from satisfactory. They reviewed the records of 265 patients with perforated ulcer, who were treated at the San Francisco Hospital. Ten patients with proved perforated ulcers recovered without operation on the following regimen: constant gastric suction through a Levine tube, nothing by mouth, parenteral dextrose solution and vitamins and sedation. Antibiotics were used in only 3 cases. In all cases except one, free air was demonstrable by roentgenogram. In this patient an abscess was found walled off by the liver at the site of perforation. In the experience at the authors' hospital, free air is present in 85 to 90 per cent of all cases of perforated ulcers. Its absence suggests that the perforation has been rapidly sealed off. If no free air is present in a patient who is clinically improving, they believe it safe to start out with the nonoperative treatment. The authors cite patients who recovered without operation and those who died without operation and those who died after operation. The over-all mortality rate in the 265 patients was 12 per cent, whereas the operative mortality rate was 6.4 per cent. They believe it justifiable to delay operation in all those patients in whom peritonitis is apparently becoming localized and who seem to be improving clinically. One would be encouraged in this stand if no free air could be demonstrated in the peritoneal cavity by roentgenogram.

Florida Medical Association Journal, Jacksonville

35:195-260 (Oct.) 1948

Hypertension: Recent Trends in Surgical Treatment. A. C. Williams. —p. 211.
Dacryocystorhinostomy. M. W. Hester.—p. 223.
Electroshock Therapy. J. B. O'Connor.—p. 227.

35:261-332 (Nov.) 1948

Hemiplegia: Treatment by Stellate Ganglion Block. T. C. Butt and F. Mathers.—p. 285.
Progressive Spinal Muscular Atrophy. I. I. Weintraub.—p. 291.
Points on Immunization Procedures and Quarantine. J. A. Toomey. —p. 295.
Diagnosis of Secondary Syphilis. J. A. Barger.—p. 298.

Hawaii Medical Journal, Honolulu

8:1-76 (Sept.-Oct.) 1948. Partial Index

Clinical and Experimental Research in Field of Cancer. S. C. Harvey. —p. 17.
Cytologic Diagnosis of Cancer by Smear Technic: I. History, Applications and Future of Method. W. B. Quisenberry.—p. 29.
Carcinoma of Stomach in Hawaii: Review of 121 Gastric Lesions at Queen's Hospital. J. McClanahan, J. A. Mitchel and H. E. Milliken. —p. 32.
Treatment of Carcinoma of Cervix. F. C. Spencer.—p. 34.

Journal of Allergy, St. Louis

19:353-428 (Nov.) 1948

Study on Mechanism of Dermatitis Venenata in Guinea Pig with Demonstration of Skin-Sensitizing Antibody by Passive Transfer. S. B. Crepea and R. A. Cooke.—p. 353.
Experiments on Histamine Refractoriness. L. Farmer.—p. 358.
Influence of Intravenously Administered Benadryl on Blood Pressure and Electrocardiogram. G. Mackmull.—p. 365.
Studies on Chronic Toxicity of Pyranisamine Maleate (Neo-Antergan Maleate) in Animals. C. A. Winter, S. Kuna and C. W. Mushett. —p. 371.
Use of Antihistaminic Drugs in Treating Patients Allergic to Liver Extract. H. M. Carryer and G. A. Koelsche.—p. 376.
*Side Effects of Three Antihistaminic Drugs. D. E. Holtkamp, D. D. Hagerman and R. W. Whitehead.—p. 384.
Fatality Associated with Benadryl Therapy: Report of Case. N. S. Blackman and J. C. Hayes.—p. 390.
Histamine Antagonists: XII. Neohetramine, 2-(N-Dimethylaminoethyl-N-p-Methoxybenzyl)-Aminopyrimidine Hydrochloride; Clinical and Pharmacologic Results. T. B. Bernstein and S. M. Feinberg.—p. 393.
Contact Dermatitis of Celery Farmers. J. C. Wiswell, J. W. Irwin, E. F. Guba and others.—p. 396.
Distribution of Ragweed Pollen and Alternaria Spores in Upper Atmosphere. H. A. Heise and Eugenia R. Heise.—p. 403.
Unusual Case of Hypersensitivity to Cold Complicated by Paroxysmal Diarrhea. J. P. McGovern.—p. 408.

Side Effects of Antihistaminic Drugs.—Holtkamp and his associates observed side effects from the use of diphenhydramine hydrochloride (benadryl®) and tripelennamine hydrochloride (pyribenzamine®). Usually these side effects consisted of drowsiness, dizziness or nervousness, but more severe reactions such as "benadryl jag," unconsciousness, narcolepsy and epileptiform movements have been seen. Recently, a combination of 25 mg. diphenhydramine hydrochloride and 100 mg. aminophylline (per tablet), hydryllin,® has been added to the antihistaminic drugs. The present study was made to obtain a more adequate basis for the comparison of the side effects caused by these three drugs. The drugs were given in therapeutic dosage to healthy college students. It was found that mental ability, reaction time and minimum distance of two point discrimination were appreciably altered by these drugs in over half the subjects tested. Tripelennamine caused a greater number to show a decrease in efficiency than did diphenhydramine, but the latter occasionally caused decreases of considerably greater magnitude. Hydryllin® caused an increased efficiency in a majority of the subjects but adversely affected a few. A patient who first takes these drugs should be observed carefully and should be warned of the dangers inherent in his reduced ability to react quickly. These factors are especially important in driving an automobile.

Journal of Bacteriology, Baltimore

56:509-698 (Nov.) 1948. Partial Index

Observations on Growth of Psittacosis Virus in Chorioallantoic Membranes by Electron Microscope. F. Heinmets and O. J. Golub.—p. 509.
Studies on Streptomycin. Jane Henry, R. J. Henry, R. D. Housewright and S. Berkman.—p. 527.
Factors Influencing Histoplasmin Formation. S. B. Salvin and G. A. Hottle.—p. 541.
Influence of Sodium Acetate Upon Dissociation of Strain of Hemolytic Streptococcus. Alice P. McIlroy, A. E. Axelrod and R. R. Mellon. —p. 547.
Studies on Heat Resistance. F. L. Davis Jr. and O. B. Williams. —p. 555.
New Preparation Technics for Electron Microscopy of Bacteria. J. Hiller, G. Knaysi and R. F. Baker.—p. 569.
Unusual Strain of Streptococcus Isolated from Subacute Bacterial Endocarditis. Helen Auerbach and O. Felsenfeld.—p. 587.
Electron Micrograph Studies of Two Strains of Pleuropneumonialike (L) Organisms of Human Derivation. W. E. Smith, J. Hillier and S. Mudd.—p. 589.
L-Type Variation and Bacterial Reproduction by Large Bodies as Seen in Electron Micrographic Studies of Bacteroides Funduliformis. W. E. Smith, S. Mudd and J. Hillier.—p. 603.
Intestinal Microflora of Hens as Influenced by Various Carbohydrates in Biotin-Deficient Ration. K. R. Johansson, W. B. Sarles and S. K. Shapiro.—p. 619.
Comparative Study of In Vitro Bacteriostatic Action of Some Simple Derivatives of Furan, Thiophene, and Pyrrole. W. C. Ward and M. C. Dodd.—p. 649.
Biochemical Properties of Toxins of Clostridium Novyi and Clostridium Hemolyticum. R. C. Bard and L. S. McClung.—p. 665.
Enzymic Activity of Bacteriophage-Culture Lysates: I. A Capsule Lysin Active Against Klebsiella Pneumoniae Type A. J. C. Humphries, —p. 683.

Journal of Experimental Medicine, New York

88:503-568 (Nov.) 1948

*Hemolysin Associated with Mumps Virus. H. R. Morgan, J. F. Enders and P. F. Wagley.—p. 503.
Relation of Infectious and Hemagglutination Titers to Adaptation of Influenza Virus to Mice. Cheng-I Wang.—p. 515.
Specific Serum Agglutination of Erythrocytes Sensitized with Extracts of Tubercle Bacilli. G. Middlebrook and René J. Dubos.—p. 521.
Neoplastic Potentialities of Mouse Embryo Tissues: IV. Lung Adenomas in Baby Mice as Result of Prenatal Exposure to Urethane. W. E. Smith and P. Rous.—p. 529.
Structure of Human Skin Collagen as Studied with Electron Microscope. J. Gross and F. O. Schmitt.—p. 555.

Hemolysin Associated with Mumps Virus.—Morgan and his co-workers say that during experiments by some of the members of their group hemolysis was observed in suspensions of chicken erythrocytes exposed at 37 C. to amniotic or allantoic fluids derived from chick embryos infected with mumps virus. The results of systematic studies of this hemolytic factor are described in the present communication. A factor capable of causing hemolysis of the erythrocytes of man, chicken and sheep occurs in the amniotic and allantoic fluids of chick embryos infected with the virus of mumps. The hemolysin has not been found in normal fluids or in those infected with PR8 or Lee B strains of influenza virus. The hemolysin is definitely inhibited by the serum of man and monkey convalescent from mumps, but only slightly by the serum of the acute phase. The hemolysin is almost completely inactivated at 50 C. after ten minutes. It exhibits maximal activity at 37 C. and is completely inactive at 4 C. A p_H range from about 7.0 to 8.0 allows for maximum activity. Adsorption and elution of the hemolysin with red blood cells has been demonstrated. After elution of the hemolysin, the red blood cells exhibit an increased osmotic fragility. Similar treatment of red cells with influenza virus did not alter this property.

Journal of Immunology, Baltimore

60:303-442 (Nov.) 1948

Studies in Cellular Growth. M. Maltz, D. M. Spain and N. Molomut. —p. 303.

Quantitative Studies of Complement-Fixation. A. G. Osler and M. Heidelberger.—p. 317.

Prolonged Protection of Guinea Pigs Against Histamine by Means of Pellets of Pyribenzamine in Beeswax Implanted Subcutaneously. A. Kellner, J. W. Correll, A. T. Ladd and E. C. Alvord Jr.—p. 339.

Reversal in Vivo by BAL of Inactivation of Influenza A Virus and Diplococcus Pneumoniae by Bichloride of Mercury. M. Klein and J. E. Perez.—p. 349.

Relation of Antagonistic Coliform Organisms to Shigella Infections: II. Observations in Acute Infections. S. P. Halbert.—p. 359.

Antibody Formation and Sensitization with Aid of Adjuvants. J. Freund, K. J. Thompson, H. B. Hough and others.—p. 383.

Attempt to Produce Bacterial Agglutinins in Vitro. L. B. Fastier. —p. 399.

Therapy of Experimental Brucella Infection in Developing Chick Embryo. III. Synergistic Action of Streptomycin and Sulfadiazine. J. M. Shaffer and W. W. Spink.—p. 405.

Studies in Cellular Growth: III. Effect of Antigranulation-Tissue-Serum on Wound Healing in Mice. M. Maltz.—p. 411.

Neurotoxic Symptoms Produced in Syrian Hamster (Cricetus Auratus) by Diphtherial Toxin. L. Olitzki, L. A. Stuczynski and N. Grossowicz. —p. 419.

Preparation of Serologic Antigen and Vaccine for Experimental Tsutsugamushi Disease (Scrub Typhus). C. A. Bailey, F. H. Diercks and J. E. Proffitt.—p. 431.

Journal of Pediatrics, St. Louis

33:525-674 (Nov.) 1948

*Diagnosis of Pulmonary Stenosis by Angiocardiography. M. J. Carson, T. H. Burford, W. G. Scott and J. Goodfriend.—p. 525.

Eczema Vaccinatum: Recovery of Vaccine Virus from Cutaneous Lesions of Two Children and Demonstration of Antibody Rise During Convalescence. I. Ruchman and Katherine Dodd.—p. 544.

*Streptomycin in Treatment of Pertussis. H. Leichenger and A. Schultz. —p. 552.

Venous Pressures in Children in Health and Disease. H. R. Irwin and T. Winsor.—p. 556.

The Squeezogram: Objective Method for Recording Course of Chorea. J. J. Cohen and J. Dancis.—p. 564.

Grid for Recording Weight of Premature Infants. J. Dancis, J. R. O'Connell and L. E. Holt Jr.—p. 570.

Experiences with Epidemic Diarrhea of Newborn: Use of Nutramigen in Its Dietary Management. J. P. Scott and Josephine G. Kety. —p. 573.

*Treatment of Acute Hematogenous Osteomyelitis of Long Bones in Infants and Children. C. A. Beerman.—p. 578.

Dwarfism of Undetermined Etiology: Study of Birth Weight and Subsequent Development. P. Troen and M. S. Blumberg.—p. 591.

Tension Type of Congenital Pulmonary Cyst. J. M. Walker. W. B. Taggart and H. J. Staton.—p. 601.

Acne Neonatorum: Report of Acne Vulgaris in 2 Infants. H. H. Perlman.—p. 609.

Incidence of Diseases Among Reading Failures and Nonfailures. T. H. Eames.—p. 614.

Diagnosis of Pulmonary Stenosis by Angiocardiography.—Carson and his associates feel that angiocardiography is of value in infants and children who are too small for cardiac catheterization. The tautograph developed by one of the authors (Scott) makes ten radiographic exposures within ten seconds. Each patient fasts for at least four hours before the procedure. Infants and children are given a general anesthetic, older patients a local anesthetic. In patients with cyanotic heart disease and polycythemia, subcutaneous fluids are administered preoperatively and oxygen is given concomitantly with the anesthetic. The patient is placed on the tautograph, and the antecubital vein is isolated. The distal end is ligated and a cannula is inserted into the proximal end and tied in place. A slow intravenous drip of isotonic sodium chloride solution is begun through a three way stopcock to insure patency of the cannula. A few minims of 70 per cent iodopyracet is injected and, if after several minutes no reaction has occurred, the final injection is made. Infants 3 months to 2 years of age receive 10 to 18 cc. of iodopyracet, and older children 20 to 40 cc. The injection must be made as rapidly as possible in order to obtain a sufficiently dense concentration. In the tetralogy of Fallot (1) an interventricular septal defect is indicated when iodopyracet flows directly from the right ventricle into the left ventricle; (2) simultaneous opacification of the aorta, pulmonary conus and pulmonary arteries indicates the presence of an overriding aorta with the iodopyracet flowing simultaneously into both the aorta and the pulmonary conus from the right ventricle; (3) enlargement of the right ventricle is seen; (4) the decreased caliber of the pulmonary arteries is visualized. This last observation will differentiate tetralogy of Fallot from Eisenmenger's complex, in which pulmonary arteries of normal or unusually large size are seen. In cases of nonfunctioning right ventricle with tricuspid stenosis opaque material enters the right auricle from the superior vena cava. None enters the right ventricle, but instead it can be seen entering the left auricle and then an enlarged left ventricle. Then there is simultaneous visualization of the aorta, and if pulmonary stenosis is present, small pulmonary arteries are visualized. Persistent truncus arteriosus with stenotic pulmonary arteries will show a large right ventricle; a large interventricular septal defect is indicated by rapid opacification of the left ventricle in the second or the third roentgenogram; in these same roentgenograms a single large vessel is seen emerging from the region of the ventricles and, because opacification of this vessel occurs at the same time the left ventricle begins to be visualized, it is likely that the truncus overrides the septal defect; no pulmonary conus is seen, but small pulmonary arteries can be seen arising from the single large truncus.

Streptomycin in Pertussis.—Only patients having uncomplicated whooping cough were included in this study by Leichenger and Schultz. The patients were assigned in rotation to one of three groups. Those in the first group received streptomycin by the aerosol route; those in the second group received it intramuscularly, and those in the third received the usual symptomatic whooping cough treatment of the Cook County Contagious Disease Hospital. The latter were considered controls. Each group comprised 8 patients. While this is a small series, daily observation of these patients gave the impression that those who received streptomycin via aerosol did much better clinically than the other two groups, despite the fact that the children had to be awakened to receive the treatment. This awakening frequently initiated a paroxysm. No toxic effects of the drug were noted with the exception of a transitory generalized morbilliform eruption which lasted two days in 1 patient who received streptomycin intramuscularly. Since there had been no previous experience with streptomycin in whooping cough, the dosage of 1 Gm. a day and the length of treatment of one week were arbitrarily decided on. The authors believe that there is sufficient evidence that streptomycin is of clinical benefit in the treatment of pertussis to justify a more extended use.

Treatment of Acute Osteomyelitis of Long Bones in Infants and Children.—Beerman shows that during the past few years the treatment of acute hematogenous osteomyelitis has changed so that the management is now chiefly medical rather than surgical. He presents observations on 7 patients and outlines a plan for the treatment. It is important to have a high degree of suspicion of the presence of the disease. Treatment is started at the earliest possible moment when a tentative diagnosis is made, or when some other diagnosis, such as cellulitis, seems likely but osteomyelitis cannot be ruled out completely. Supportive care for dehydration and pain is given. Penicillin is administered in a dosage of 50,000 units every three hours intramuscularly for fourteen to twenty-eight days or more. Orthopedic consultation is obtained, but generally the care is chiefly medical unless deep abscesses are present. Such abscesses are aspirated or drained. If the disease is of moderate duration (six to seven days), there is a great probability that surgical care will play the major role, with penicillin an essential aid but not effective as a sole agent. Beerman does not use plaster immobilization, for he feels that ordinary rest in bed is adequate splinting in cases in which only medical care is necessary. When deep abscesses are present or when extensive bone involvement is noted because of delay in diagnosis, or because of a particularly massive and virulent infection, splints are used. Weight bearing is not permitted until roentgen studies show regression of bone lesions. Roentgen examinations are recommended every one to two weeks until the bone changes are showing regression, and then every four to eight weeks until complete healing. After complete healing, the patient should be followed every six months to a year for several years by roentgen studies.

Military Surgeon, Washington, D. C.

103:335-418 (Nov.) 1948. Partial Index

Use of Streptomycin in Treatment of Tuberculosis. S. Jacobs, A. A. Doerner and A. D. Miller.—p. 335.
Cytologic Method of Cancer Detection: Review. G. Adams.—p. 341.
*Mesenteric Vascular Occlusion. J. D. Rives.—p. 348.
Use of Maintenance Mercurials in Cardiac Failure. J. R. Green and Gwendolyn S. Patterson.—p. 354.
Malignant Melanoma: Comparative Study of Incidence in Negro Race. R. J. Muelling Jr.—p. 359.
Diffuse Progressive Interstitial Fibrosis of Lungs. A J. Beams and O. Harmos.—p. 364.
Surgical Treatment of Varicose Veins. O. C. Williams and C. W. Applewhite.—p. 366.
Canicola Fever: Case Report. A. A. Doerner and T. Hernandez. —p. 368.
Oral Penicillin in Treatment of Acute Respiratory Infections: Preliminary Report. L. L. Terry and M. Friedman.—p. 377.
Intraperitoneal Rupture of Bladder: Report of 5 Cases C. Ferguson, T. S. Hershey and J. Kovacs Jr.—p. 378.
Neoplasms of Lungs. J. C. Henthorne.—p. 387.
Intravenous Ether (Diethyloxide) Used in Treatment of Cases of Impending Gangrene and Impaired Circulation. O. C. Williams. —p. 388.
Sympathectomy as Adjuvant in Treatment of Chronic Osteomyelitis—Preliminary Report. H. R. Markheim.—p. 388.
Ulcer Problem Among Military Personnel During World War II and Its Postwar Sequels. A. E. Hussar.—p. 392.
Fifty Shock Therapy Theories. H. L. Gordon.—p. 397.

Mesenteric Vascular Occlusion.—According to Rives, occlusion of the blood supply of the bowel may result from mechanical causes as in strangulation or from either thrombosis or embolism. The mortality of mesenteric vascular occlusion is extremely high because (*a*) many patients are in extremis from cardiovascular disease when it occurs and (*b*) in most others diagnosis and treatment are too long delayed. Features that aid in diagnosis are a history of a known predisposing cause, the character of the onset, the early disappearance of peristalsis in a case of suspected intestinal obstruction, the occurrence of a high degree of leukocytosis without evidence of peritonitis and the development of shock when all other evidence points toward partial obstruction. The treatment for all types of the disease should be the same because the effect on the bowel is the same and the ischemia usually progresses to infarction. Radical resection of the bowel is essential when gangrene has developed. Anticoagulant therapy may prevent mesenteric vascular occlusion and may be of value in postoperative treatment, but cannot be recommended as definitive treatment.

New England Journal of Medicine, Boston

239:693-728 (Nov. 4) 1948

*Acute Renal Insufficiency Due to Lower-Nephron Nephrosis. M. B. Strauss.—p. 693.
*Dicumarol Therapy in Congestive Heart Failure. J. H. Wishart and C. B. Chapman.—p. 701.
Closed-Loop Obstruction of Ascending Colon, with Incomplete Descent of Cecum, Simulating Acute Cholecystitis. E. A. Gastron and M. E. Costin.—p. 705.
Bacterial Endocarditis Following Urethral Manipulation: Report of 2 Cases. J. K. Meneely Jr.—p. 708.
Sarcoidosis. D. G. Freiman.—p. 709.
Endocarditis, Acute Bacterial (Staph. aureus), Mitral and Aortic Valves, Healing. Acute Glomerulonephritis.—p. 716.
Adenocarcinoma of Pancreas, with Metastases. Perforation of Metastatic Carcinoma of Ileum Forming Pelvic Abscess. Acute Generalized Peritonitis.—p. 720.

Acute Renal Insufficiency Due to Lower Nephron Nephrosis.—Acute renal insufficiency due to the lower nephron nephrosis or hemoglobinuric nephrosis occurs in association with intravascular hemolysis associated with transfusion reactions, blackwater fever, sensitivity to quinine and transurethral prostatectomy, as well as in the crush syndrome, nontraumatic muscle ischemia, electrical injury to muscle, heat stroke, uretero-placental damage, alkalosis from excessive vomiting, thermal burns, sulfonamide sensitivity and from various poisons, particularly carbon tetrachloride. Strauss presents data pertinent to this syndrome and 7 case histories. There is evidence that neither nitrogen retention nor acidosis is responsible for the usual fatal outcome. Fatal cases of lower nephron nephrosis often exhibit generalized and pulmonary edema at necropsy. In the absence of pulmonary edema potassium intoxication may lead to a fatal outcome. Man, unlike small animals, may survive without renal function for four or more weeks, if excessive quantities of fluids are not administered parenterally. The tubular lesion is often reparable, with spontaneous diuresis to be expected within three weeks, if the patient can be kept alive this long. Many treatments proposed for this condition fail to speed the appearance of spontaneous diuresis. Strauss outlines a regimen which consists essentially in the replacement of water loss and in the furnishing of 100 Gm. of dextrose daily. This may, in many cases, permit the patient to survive long enough to have spontaneous recovery.

Dicumarol® in Congestive Heart Failure.—Wishart and Chapman believe that thrombosis and embolism are serious threats to the life of the decompensated cardiac patient. The authors employed dicumarol® in 61 patients with congestive heart failure in order to decrease the incidence of embolic phenomena. Previously published reports indicate that in a group of cardiac patients comparable to these one may expect embolic phenomena in the form of infarcts of the lungs in at least 22 per cent. In this series, the incidence of such lesions, during the period when dicumarol® therapy was effective, was 6.5 per cent. There were no deaths attributable with certainty to massive pulmonary embolism, and only 1 death that might conceivably have been due to such an accident. On the basis of these results, it is probable that dicumarol® therapy gives protection from thrombosis and embolism to the cardiac patient when he needs it most—when he is in congestive failure.

New Orleans Medical and Surgical Journal

101:199-248 (Nov.) 1948

Etiology of Nephritis. J. M. Hayman Jr.—p. 199.
Pathologic Physiology of Chronic Nephritis. J. M. Hayman Jr.—p. 203.
Treatment of Anuria. T. Findley.—p. 206.
The Practitioner and Diagnosis and Treatment of Headache. W. W. Morrison.—p. 210.
Present Status of Fenestration Operation for Otosclerosis. W. W. Morrison.—p. 222.
Removal of Auricular Appendage and Its Possible Therapeutic Use: Preliminary Report. W. J. Burdette.—p. 228.

New York State Journal of Medicine, New York

48:2319-2430 (Nov. 1) 1948

*Outlook for Patients Admitted to Mental Hospital After Age of Sixty. H. E. Clow.—p. 2357.
Schizencephalies with Hydrocephalus: Clinical Diagnosis of Severe Cerebral Agenesis. W. F. Beswick.—p. 2364.
Spinal Epidural Infection. E. W. Corradini and E. J. Browder. —p. 2367.
Practical Aspects of Cerebral Vascular Accidents. H. H. Merritt. —p. 2371.
Function of Child Guidance Clinic in Children's Hospital. S. Little. —p. 2379.
Scalenus Anticus Syndrome. B. D. Judovich.—p. 2382.
Electronarcosis in Psychiatric Therapy. B. L. Pacella.—p. 2387.
Evaluation of Hydryllin (Diphenhydramine and Aminophyllin) in Symptomatic Treatment of Allergy. H. Markow, S. Bloom and H. Leibowitz.—p. 2390.
Management of Anuria in Acute Mercurial Intoxication. A. P. Fishman, I. G. Kroop, H. E. Leiter and A. Hyman.—p. 2393.
Acute Urinary Infections in Infants and Children. M. F. Campbell. —p. 2397.

Outlook for Elderly Mental Patients. — According to Clow it is frequently assumed that in patients in whom mental disease develops or who have recurrences of such diseases after the age of 60 the prospects of recovery are poor. This question was investigated in a group of 365 such persons consecutively admitted to a New York Hospital from 1936 to 1946. Nearly two thirds had functional reactions, which included the involutional psychoses which represented typical agitated and paranoid depressions arising in rigid personalities in response to changes in the life situation. In the remaining 35.1 per cent the usual mental and physical evidences of psychosis associated with organic impairment of the brain were present. At the time of leaving the hospital the group as a whole showed 24.1 per cent to have recovered, 19.7 per cent to be much improved, 20.3 per cent improved, 21.4 per cent unimproved and 14.5 per cent to have died in the hospital. Of the 33 patients with senile psychosis, none recovered. Of the patients with psychosis with cerebral arteriosclerosis, however, 15, or 19.7 per cent, showed substantial improvement with the ability to adjust adequately at home. Of 4 patients with organic delirium due to drugs, all recovered. In the group of 111 patients with manic-depressive disorders, 43 per cent recovered and 22 per cent improved. However, none of the 11 patients with well established dementia praecox showed great improvement. Good resources, which give security, and a favorable family situation were important factors in recovery. Age likewise seemed a factor, since those in the seventh decade showed better prospects of recovery than did those in the eighth or ninth decades.

Pediatrics, Springfield, Ill.

2:511-642 (Nov.) 1948

*Toxoplasmosis in Children. F. H. Adams, J. M. Adams, P. Kabler and Marian Cooney.—p. 511.
*Replacement Transfusion as Treatment for Erythroblastosis Fetalis. L. K. Diamond.—p. 520.
Acute Diarrhea in Infancy. A. Ariztia and C. Garcés.—p. 525.
Recognition and Treatment of Increased Intracranial Pressure in Infancy and Childhood. B. Woodhall.—p. 533.
Cup Feeding of Newborn Infants. R. C. Fredeen.—p. 544.
Effects of Cup, Bottle and Breast Feeding on Oral Activites of Newborn Infants. H. V. Davis, R. R. Sears, H. C. Miller and A. J. Brodbeck.—p. 549.
Infectious Croup: III. Hemophilus Influenzae Type B Croup. E. F. Rabe.—p. 559.
Urinary Retention Due to Hematocolpometra: Report of Two Cases—One with Spontaneous Recovery. A. Bloxsom and N. Powell.—p. 567.
Immunologic and Biochemical Studies in Infants and Children with Special Reference to Rheumatic Fever. V. Electrophoretic Patterns in Blood Plasma and Serum in Normal Children. Rose Lubschez.—p. 570.
Id. VI. Electrophoretic Patterns of Blood Plasma and Serum in Rheumatic Children. May G. Wilson and Rose Lubschez.—p. 577.

Toxoplasmosis in Children.—Adams and his co-workers report 5 proved cases of toxoplasmosis in infants and 9 cases in which the clinical and laboratory evidence strongly suggested this diagnosis in infants and children. The most important observation in these patients has been the almost constant occurrence of internal hydrocephalus. It was present in patients with a normal or small head size as well as in macrocephalus. Convulsions were present in only 3 of the patients in sharp contrast to the incidence previously reported. Cerebral calcification occurred in 7 of the patients and chorioretinitis was present in 5. Five patients had neither of these cardinal manifestations, and 2 of these were patients in whom the toxoplasmic organism was found. This evidence strongly suggests that the diagnosis of toxoplasmosis should be suspected in the presence of internal hydrocephalus, particularly with spinal fluid changes such as elevated protein and pleocytosis. When the classical triad or tetrad of symptoms and signs of the disease is present and the result of the neutralization test is positive, the diagnosis of toxoplasmosis probably should be made, since isolation of the organism from the patient is difficult at the present time. One patient aged 2 months had a progressive jaundice from birth; it subsided gradually, but it can be the presenting complaint in a patient with congenital toxoplasmosis. Most of the patients had the onset of their illness in utero, at birth or shortly after birth. Nine of the patients are still alive, and except for 2, the chances of their living for many years are good. It seems likely that if the patient can survive the acute infection a chronic state can be reached that is compatible with life.

Replacement Transfusion in Erythroblastosis Fetalis.—Diamond treated 95 infants with erythroblastosis fetalis by replacement transfusions. The first 10 were given transfusions by various routes, two peripheral veins or the longitudinal sinus and a vein being used. The last 85 had been given transfusion only through the umbilical vein with a long bland plastic, polyethylene catheter and needle, two three-way valves being connected directly to the needle. By alternate maneuvers of first removing and next putting in blood 20 cc. at a time, the infant can gradually be exsanguinated and most of its blood volume replaced with relatively little trauma. About a pint of group O blood or group-specific blood of the Rh-negative type is used usually in replacing the infant's own blood volume. In the course of about one to one and a half hours this 500 cc. of blood replaces between 90 and 95 per cent of the infant's own circulating erythrocytes. Of the 95 infants, 20 belonged to families in which a previous child had died with erythroblastosis. In such families the statistical chance of a subsequent infant's survival is less than 10 per cent, and yet of these 20, 14 infants (70 per cent) survived and are completely well without residual damage. Two died and 4 lived but showed evidence of kernicterus later. Of the 85 infants treated by umbilical vein transfusion 65 are now living and well and show no evidence of residual damage over a period of three months, some of them right up to fifteen months. Seven patients died, but not of erythroblastosis. This mode of treatment has the advantage of ease and greater safety, and an added advantage of the earlier discharge of the patient from the hospital in seven or eight days, rather than in two to three weeks.

Pennsylvania Medical Journal, Harrisburg

52:89-184 (Nov.) 1948

Present-Day Concept of Treatment of Thrombosis and Embolism. A. W. Allen.—p. 113.
Physician, Heal Thyself! R. C. Hutchison.—p. 120.
Studies on Rh Hapten. Bettina B. Carter.—p. 124.
Social and Economic Aspects of Practice of Medicine. T. R. Fetter.—p. 128.
Urethrograms and Cystograms in Diagnosis of Lower Urinary Tract Disease. R. B. Roth.—p. 130.
Abused Diagnosis of Sinusitis. C. C. Fox.—p. 136.
Evaluation of Newer Vasodilators in Peripheral Vascular Disorders. D. W. Kramer.—p. 140.

Philippine Medical Association Journal, Manila

24:487-588 (Sept.) 1948

History of Aviation Medicine. P. G. Potenciano.—p. 487.
Schistosomiasis Reconnaissance in Northwestern Mindanao. T. P. Pesigan.—p. 495.
Choroidal Metastatic Carcinoma Following a Primary Growth in Breast—with Clinical and Pathologic Observations. M. G. Tan.—p. 507.
Strong Antihemorrhagic Property of Hecabepterin, The Yellow Pigment in the Philippine Butterfly Terias Hecabe Linnaeus. E. Y. Garcia.—p. 515.

Proc. Soc. Exper. Biol. & Med., Utica, N. Y.

69:1-190 (Oct.) 1948. Partial Index

*Effect of Feeding Moderate Levels of Commercially Agenized Flour to Dogs. G. W. Newell, S. N. Gershoff, T. C. Erickson and others.—p. 1.
Simple Intestinal Obstruction: Prolongation of Life for 45 Days with Parenteral Alimentation. P. Nemir Jr., H. R. Hawthorne and Burnetta L. Lecrone.—p. 14.
Histologic Evidence for Synthesis of Protein in Lymphocytes Following Parenteral Injection of Antigen. T. N. Harris and Susanna Harris.—p. 18.
Viscosity Studies of Erythrocytes from Persons with Sickle Cell Disease. W. M. McCord, W. H. Kelley, P. K. Switzer and F. B. Culp.—p. 19.
Isometric Relaxation Period of Left Ventricle in Normal Subjects and Patients with Mitral Stenosis. A. A. Luisada, F. J. Romano and J. M. Torre.—p. 23.
Complement Fixation in Human Sera Following Murine Typhus. E. R. Rickard.—p. 31.
Strains of Virus of Foot-and-Mouth Disease Recovered from Outbreaks in Mexico. Vaccination Experiments. W. M. Henderson, I. A. Galloway and J. B. Brooksby.—p. 77.
*Effect of Rutin on Dicoumarolism. W. G. Clark.—p. 97.
*Isolation of Mumps Virus from Blood of Patient. L. Kilham.—p. 99.
Production of Hemagglutinin by Mumps and Influenza A Viruses in Suspended Cell Tissue Cultures. T. H. Weller and J. F. Enders.—p. 124.
Effect of Aminophyllin on Coagulation of Human Blood. D. W. Blood and M. C. Patterson.—p. 130.
Propagation of Rabbit Fibroma Virus in Embryonated Egg. Margaret H. D. Smith.—p. 136.

Feeding Agenized® Flour to Dogs.—Newell and his co-workers placed a series of dogs on a diet which contained an amount of agenized® flour approximately equal to that used in the average American diet. The results demonstrated that dogs can be fed a ration containing moderate levels (30 per cent) of commercially agenized® flour for long periods (twelve to fourteen and a half months) without having running fits or electroencephalographic abnormalities.

Effect of Rutin on Dicumarolism.—Under the experimental conditions employed by Clark, rutin does not antagonize dicumarolism in rats. Presumably the defect in the vessel walls or their supporting structures which leads to hemorrhage in dicumarolism differs from that leading to the various hemorrhagic conditions which rutin and related "vitamin P"-like substances purportedly benefit. These facts, however, need not necessarily preclude the simultaneous use of dicumarol® and "vitamin P" for their separate effects, as illustrated by a report on the favorable effects of rutin and dicumarol® in various retinal vascular disorders.

Isolation of Mumps Virus.—Killham reports a boy, aged 3, in whom a clinical diagnosis of mumps was made when the left parotid was found firm, swollen and tender. Several days later swelling appeared in the parotid on the right side. Blood was drawn the day parotitis was first observed and 5 cc. treated with sodium citrate. Because whole citrated blood had resulted in a high mortality in previous egg inoculations, the plasma was separated from the red blood cells after natural sedimentation, and the two fractions stored in solid carbon dioxide. Two weeks later 12 eggs were inoculated intra-amniotically with 0.1 cc. of the plasma, and 5 survived for harvesting. The red blood cell fraction was diluted 1:2 in infusion broth, and the mixture in 0.2 cc. amounts inoculated into 12 eggs intra-amniotically. Only 3 embryos survived. In the third egg passage, virus was detected in 4 of 8 amniotic fluids, and in almost all eggs of two subsequent passages. The cerebrospinal fluid inoculated into eggs in 0.2 cc. amounts yielded no virus in three passages, a not unexpected result, since the patient had no symptoms suggesting meningoencephalitis. Inhibition of hemagglutination and complement fixation tests identified the agent as the mumps virus.

Psychosomatic Medicine, Baltimore

10:253-308 (Sept.-Oct.) 1948

*Treatment of Psychoses with Bilateral Ablation of Focal Area of Frontal Cortex. R. G. Heath and J. L. Pool.—p. 254.
Criteria for Evaluation of Group Therapy. E. M. L. Burchard, J. J. Michaels and B. Kotkov.—p. 257.
Psychosomatic Studies of Children with Allergic Manifestations. I. Maternal Rejections: Study of Sixty-Three Cases. H. Miller and Dorothy W. Baruch.—p. 275.
Significance of "Emotional Climate" in Early Feeding Difficulties. Beata Rank, Marian C. Putnam and G. Rochlin.—p. 279.
Approach to Study of Diabetic. Therese Benedek.—p. 284.
Role of Emotion in Onset and Course of Diabetes. G. E. Daniels.—p. 288.
Objectives of Modern Diabetic Care. E. Tolstoi.—p. 291.

Bilateral Ablation of Focal Area of Frontal Cortex.—Heath and Pool performed bilateral extirpation of different areas and combinations of areas of frontal cortex on 24 patients with chronic psychosis who had not responded to conventional therapy, including shock, at New Jersey State Hospital in Greystone Park. In all of the patients who showed definite improvement as a result of operation, Brodmann's areas 9 and/or 10 were included in the removal. In addition to the Greystone patients 23 private patients have been operated on. In these too, conventional treatment, including shock, had failed. All in this group had removals confined to the region of areas 9 and/or 10. Eight have been followed less than three months. Of the remaining 15, all but 2 had been institutionalized before operation for periods up to twenty-eight years; of this group 10 are now able to function at old capacity, 3 are able to be out of the institution with supervision and 2 remain institutionalized. Beneficial effects resulting from removal of areas 9 and/or 10 are constantly in the sphere of affective response, so that tensions do not accumulate, thereby making regressive reparative behavior unnecessary. Patients in whom more than two large Brodmann areas or several small cortical areas are removed will show signs of deterioration in social behavior, as occurred in the authors' case of lobotomy in which large amounts of cortex were undercut. The operation as now performed (topectomy) consists of removal of the posterior part of area 10 and the anterior part of area 9. Improvement appears to be related to site removed rather than differences in cytoarchitecture. Patients whose overt psychotic symptoms are removed by this operation show essentially the same basic personality traits as were present before the illness began. In persons with chronic psychosis affect becomes divorced from ideation to varying degrees. This seldom occurs except in cases of schizophrenia and manic psychosis. As this dissassociation increases, the prognosis with operation becomes less favorable.

Review of Gastroenterology, New York

15:805-866 (Nov.) 1948

Functional Innervation of Pancreas. J. E. Thomas.—p. 813.
Chronic Benign Gastric Ulcer on Greater Curvature. S. L. Cash and F. A. Marshall.—p. 821.
*Treatment of Gastric and Duodenal Ulcers with Anion Exchange Resins. J. Weiss.—p. 826.
Anatomic Basis for Study of Splanchnoptosis (Visceralptosis): Coordinated Action of Respiratory Muscles—(Diaphragma, Pneuma, etc.): Preparatory Positions and Movements. Agnes C. Vietor.—p. 832.
Test for Common Duct Stone in Postcholecystectomy Syndrome. H. M. Robinson.—p. 838.
The Mis-Treatment of Hernia. A. R. Koontz.—p. 840.

Anion Exchange Resins in Treatment of Peptic Ulcers.—Impressed by laboratory and clinical reports indicating that certain of the resins take up hydrochloric acid, and looking for an antacid which would be effective without undesirable side reactions, Weiss decided to use the anion exchange resin (200 mesh) in a series of patients in whom duodenal or gastric ulcers had been demonstrated by means of roentgen rays. Forty of 44 patients had symptomatic relief in from one to eight days. Three patients with gastric ulcers had no response. One patient with a cancer had no response. The average time of roentgenologic regression of the ulcer crater in 39 successful cases was ten to fourteen days. Neither diarrhea nor constipation was observed during or after treatment with the resin.

Southern Medical Journal, Birmingham, Ala.

41:965-1060 (Nov.) 1948. **Partial Index**

Development of X-Ray Diagnosis in Orthopedic Surgery. W. G. Stuck.—p. 965.
Significance of Specific Estrogenic, Progestogenic and Androgenic Smears in Menstrual Disorders and in Pregnancy. H. E. Nieburgs and R. B. Greenblatt.—p. 972.
Comparison of Intravenous Oxytocin and Ergonovine in Control of Hemorrhage Attending Delivery. Wm. H. Grimes Jr., R. A. Bartholomew, E. D. Colvin and J. S. Fish.—p. 980.
Local Recurrence in Breast Cancer. W. V. Hare.—p. 988.
Progressive Muscular Dystrophy: Case Report. S. Burrus Jr.—p. 991.
Granuloma Inguinale: Report of Three Cases Treated with Massive Doses of Streptomycin. R. G. Thompson, C. B. White and H. Hailey.—p. 994.
*Further Concepts in the Treatment of Rocky Mountain Spotted Fever with Para-Aminobenzoic Acid. T. E. Woodward and W. T. Raby.—p. 997.
Practical Consideration of Tropical Diseases Important to the General Practitioner and Health Officer. E. G. McGavran.—p. 1003.
Some Unofficial Observations at Dachau. H. Davis.—p. 1007.
Analysis of Impact of War Experience on Surgical Practice. C. B. Odom.—p. 1010.
*Treatment of Syphilitic Interstitial Keratitis: Outline of Method of Treatment Suitable for Rapid Treatment Center or Small Hospital. W. B. Forsyth.—p. 1015.
Actinomycosis: Report of Six Cases Treated with Penicillin and Sulfadiazine. E. F. Chanton, W. J. Hollis and M. D. Hargrove.—p. 1022.
Value of Urinary Sodium Chloride Determinations in Acute Salt Depletion. C. W. Morse.—p. 1026.
Treatment of Subacute Combined Degeneration of Spinal Cord with Vitamin B_{12}. T. D. Spies, R. E. Stone, S. Kartus and T. Aramburu.—p. 1030.
Treatment of Bleeding Peptic Ulcer. E. F. Lewison.—p. 1031.
Treatment of Inflammatory Dermatoses with Oral Bismuth (Sodium Bismuth Triglycollamate). J. K. Howles.—p. 1033.
Use of Steroid and Gonadotropic Hormones in Hydroa Vacciniforme. E. S. Lain, J. H. Lamb, Corinne Keaty and A. Hellbaum.—p. 1041.
Psychosurgery for Pain. W. Freeman and J. W. Watts.—p. 1045.
Bronchiectasis: Modern Treatment. W. B. Allan.—p. 1049.

Treatment of Rocky Mountain Spotted Fever.—Woodward and Raby treated 17 patients, 12 children and 5 adults, with Rocky Mountain spotted fever by administration of para-aminobenzoic acid. An oral dose of 8 Gm. of the sodium salt in tablet form was given to the adults initially with subsequent two-hourly doses of 3 Gm. For children the dosage was generally two thirds of that of the adults. A priming dose was administered to severely ill patients when a prompt high blood level was desired by intravenous route with a concurrent dose by mouth, the schedule thereafter being by mouth. A two hour schedule by mouth was routine, and when the determined levels of para-aminobenzoic acid in the blood were below 10 mg. per hundred cubic centimeters, the level sufficient to sterilize the blood, supplemental drug was administered intravenously. The optimum effective blood level is 40 mg. per hundred cubic centimeters, although no untoward reaction resulted from higher levels over short periods of time. The average duration of the entire febrile course was 6.8 days; the average duration of fever after the administration of the drug was 3 days and the average duration of hospitalization 11.9 days. Treatment with para-aminobenzoic acid was terminated in 9 patients after the temperature was restored to normal. There were no subsequent relapses. This procedure is not recommended if the improved clinical condition of the patient does not coincide with the drop in temperature. Para-aminobenzoic acid exerts a direct effect on the circulating rickettsiae. The bedside observation of a greatly shortened rash in 4 cases strongly points to prompt intracellular inhibition of rickettsial growth.

Syphilitic Interstitial Keratitis.—Forsyth treated 70 patients with syphilitic interstitial keratitis, 56 of whom had active interstitial keratitis, with typhoid-vaccine-induced fever and penicillin. This treatment is suitable for use in a small private hospital or rapid treatment center. All patients were treated on an ambulatory basis. The results of experiments with various-sized initial doses of killed organisms showed that the average number of hours of fever from the first typhoid vaccine injection were between four and five, if the dose was 200,000 to 300,000 killed organisms per pound of body weight. Although up to 25,000,000,000 organisms (25 cc.) were given, there was little increase in patient response to doses in excess of 12,000,000,000 organisms and, unlike smaller doses, the 12,000,000,000 organism dose may be repeated two or more times, giving an adequate febrile response on each administra*tion. All patients weighing over 65 pounds (29.5 Kg.)* were given penicillin in doses of 40,000 units each two hours for a total of eighty-five injections over a period of a week. All patients under 65 pounds of weight received 250,000 units of penicillin per 5 pounds (2.3 Kg.) of body weight in sixty injections. Forty-one of the 70 patients returned for follow-up examinations, representing 46 eyes involved with active interstitial keratitis and 20 eyes involved with inactive interstitial keratitis at the time of the treatment. Eighty-eight and three-tenths per cent useful vision was restored in 38 of these patients who had had determinations of visual acuity. The patients who had been treated within two months of the onset of their interstitial keratitis showed a 90.5 per cent return of useful vision. Results of penicillin and typhoid-vaccine-fever therapy in the treatment of interstitial keratitis are as good as the best results from any other form of therapy. Penicillin has the further advantages of a lowered incidence of toxic reactions and a shorter course of treatment. When fever therapy is used in addition to penicillin in the treatment of interstitial keratitis resolution is more prompt than when penicillin alone is used.

Surgery, Gynecology and Obstetrics, Chicago

87:513-640 (Nov.) 1948

*Carcinoma of Stomach: Validity of Basing Prognosis on Borrmann Typing or Presence of Metastases. G. E. Moore, D. State, R. Hebbel and A. E. Treloar.—p. 513.

Five Year Survival Rate in Cases of Completely Obstructing Annular Carcinoma of Descending Colon and Sigmoid: Pathologic Study. D. F. Nickell and M. B. Dockerty.—p. 519.

Comedomastitis: Clinical and Pathological Study of Data in 172 Cases. G. I. Tice, M. B. Dockerty and S. W. Harrington.—p. 525.

Results of Treatment of Carcinoma of Ovary with Data on Age Incidence of This Disease. J. H. Marks and M. H. Wittenborg.—p. 541.

*Streptomycin in Surgery of Pulmonary Tuberculosis. J. D. Murphy.—p. 546.

Lumbosacral Articulation: Roentgenologic and Clinical Study with Special Reference to Narrow Disk and Lower Lumbar Displacement. E. A. Brav. H. A. Molter and W. J. Newcomb.—p. 549.

*Correlation of Neurologic, Orthopedic, and Roentgenographic Findings in *Displaced Intervertebral Disks. F. C. Grant, G. Austin, Z. Friedenberg* and A. Hansen.—p. 561.

Management of Knee Injuries Incurred in College Football. T. B. Quigley.—p. 569.

Evaluation of Sulfathalidine and Streptomycin as Adjuncts in Preparing Large Bowel for Surgery. R. J. Rowe, E. H. Spaulding, Dorothy S. Madajewski and H. E. Bacon.—p. 576.

Tumors of Vertebral Column. J. Puig Guri.—p. 583.

Cervicomediastinal and Mediastinal Cystic Hygromas. R. E. Gross and E. S. Hurwitt.—p. 599.

Urethral Caruncle. J. K. Palmer, J. L. Emmett and J. R. McDonald.—p. 611.

Borrmann Typing in Carcinoma of Stomach.—Moore and his associates direct attention to Schindler's belief that the prognosis and perhaps the therapeutic procedure for carcinoma of the stomach may be based on the Borrmann typing of tumors. *Borrmann classified gastric carcinomas as: I, sharply* demarcated polypoid carcinomas; II, sharply demarcated ulcerated carcinomas; III, partly infiltrating carcinomas, and IV, diffusely infiltrating carcinomas. On the basis of an analysis of 239 cases Schindler questioned the advisability of resection of infiltrative tumors. Since this challenges the belief that as many carcinomas as possible should be resected, the authors decided to review the records of patients treated at their clinic. The diagnosis of gastric carcinoma was made in 342 patients, and in 177 of these gastric resection was done. They conclude that the presence or absence of demonstrable metastases in regional nodes among patients subjected to gastric resection for carcinoma has a greater prognostic value than has the classification according to the Borrmann type. Borrmann's typing affects the prognosis to the extent that the limited tumors provide a proportionately large number of patients free of matastases while the infiltrating tumors are more likely to have metastasized. The presence or absence of metastases cannot be accurately determined preoperatively and no patient should be denied operation because of the type of tumor which he may be determined to have.

Streptomycin in Surgery of Pulmonary Tuberculosis.—Murphy says that the Army and the Navy have been conducting a cooperative study of the bacteriostatic action of streptomycin on the tubercle bacillus. The surgical divisions of the forty-seven participating study units were asked to determine whether streptomycin provides protection against postoperative *spread or reactivations and against the development of empyema* in patients subjected to thoracoplasty and pulmonary resection for tuberculosis. Every alternate patient subjected to thoracoplasty and every patient undergoing lobectomy or pneumonectomy was given streptomycin as a protective agent. In the beginning 2 Gm. of streptomycin per day were given by intramuscular injection, divided into five doses. On Oct. 15, 1947, the standard daily dose was reduced to 1 Gm., divided into two doses of 0.5 Gm. each at twelve hour intervals. It was desired to avoid, as far as possible, the development of resistance to the drug. Under both regimens the drug was administered for one week before and two weeks after each operation. The results of study concerning the protective action of streptomycin in 1,347 thoracoplasty stages and 129 pulmonary resections for tuberculosis are presented. It was concluded that streptomycin should not be given to the routine thoracoplasty patient but should be reserved for the occasional borderline risk patient in whom the disease is more widespread and more exudative in character than is usually considered suitable for surgery. The use of streptomycin is mandatory, however, before as well as after pulmonary resection for tuberculosis.

Displaced Intervertebral Disks.—Grant and his associates made studies on 95 patients, who had been subjected to operations on intervertebral disks. Examination by members of the orthopedic and neurosurgical staffs was followed by anteroposterior and lateral roentgenograms of the lumbar portion of the spine and the pelvis. Neurologically, the patients were examined for sensory, motor and reflex changes. The lower limbs were checked for signs of atrophy or weakness and for the presence of pain on straight leg raising. Orthopedically, the patients were examined for scoliosis, restricted mobility, paravertebral spasm or pelvic tilt. All patients were questioned as to the presence of any residual back pain or sciatic pain. The patients were also asked concerning their personal opinion of the operation. Sixty per cent of these patients were regarded as cured and were able to pursue a normal day's work without back or sciatic pain. Eighty-seven per cent of these were fully satisfied with the results of the operation. Air myelograms, while helpful, were not as accurate as desired. Oil myelography, preferably with pantopaque® (ethyl iodophenylundecylate) as the contrast medium is the method of choice and should be routinely employed. Lost or diminished achilles reflexes do not often return, nor should a patient be allowed to believe that paralyses will invariably recover after successful removal of the offending mass. Fusion of the vertebral bodies or dense bridging occurred in 6 patients, all of whom are in the group of clinically well. This change will probably develop in more as time goes on. It seems unlikely that the presence of a significant quantity of residual opaque oil in the caudal sac has any influence on the clinical result.

Surgery, St. Louis
24:755-916 (Nov.) 1948

*Cerebral Angiography in Diagnosis of Intracranial Hematomas. K. Kristiansen.—p. 755.
End Results in Treatment of Cancer of Stomach: Analysis of 795 Cases. G. T. Pack and G. McNeer.—p. 769.
Postcholecystectomy Symptoms Due to Cystic Duct Remnant. C. B. Morton II.—p. 779.
Vascular Thrombosis in Acute Appendicitis. J. H. Remington and J. R. McDonald.—p. 787.
Roentgen Diagnosis of Volvulus of Cecum. J. P. McGraw, A. J. Kremen and L. G. Rigler.—p. 793.
Surgical Management of Thoracic Duct Injuries: Experimental Study with Clinical Application. G. B. Hodge and H. Bridges.—p. 805.
*Effect of Carinamide with Heparin on Coagulation of Human Blood: Preliminary Report. H. D. Sirak, R. S. McCleery and C. P. Artz.—p. 811.
Anemia Following Resection of Intestine: Clinical and Experimental Observations. J. D. Martin Jr., R. L. Robertson and E. W. Dennis.—p. 819.
Effect of Absorbable Sponges on Infection: Experimental Study. A. F. Cipolla and J. K. Narat.—p. 828.
Complications of Imperforate Anus Repair. F. T. Wallace and E. M. Colvin.—p. 832.
Ganglion of Anterior Cruciate Ligament. J. Levine.—p. 836.
Congenital Atresia of Esophagus with Hypoplasia or Agenesis of Lower Segment. F. X. Byron.—p. 841.
Strangulating Diaphragmatic Hernia of Liver: Report of Case with Surgical Cure. S. A. Wolfson and A. Goldman.—p. 846.
Lipoma of the Thenar. W. M. Aldredge and B. Halpert.—p. 853.
Dilute Pentothal Drip Infusion. B. A. Greene and J. W. Pillion.—p. 855.
A New Laminectomy Retractor. A. F. Reed and H. D. Kirgis.—p. 860.
*Apoplexy of Gall Bladder. F. Christopher and J. L. Savage.—p. 864.

Cerebral Angiography in Intracranial Hematomas.—According to Kristiansen most head injuries belong to the cerebral concussion group. Dehydration by means of magnesium sulfate enemas is used both as a prevention against cerebral edema and as a treatment in patients in whom edema has developed. The symptoms in cases of cerebral edema are very similar to those of intracranial hematomas. The effect of dehydration in these patients is therefore of considerable diagnostic value. Intracranial hematomas are relatively infrequent lesions in patients with head injuries. In the series of cases observed by the author from 1937 to 1939, only 1.2 per cent of the patients presented extradural and 1.2 per cent subdural hematomas. A careful preoperative diagnosis of the nature and the site of the lesion is a prerequisite for an effective treatment. Clinically, the patient's state of consciousness is the main guide in determining whether there is to be operative intervention or not. Increasing drowsiness frequently combined with motor restlessness, stupor and finally coma, which does not recede during dehydration, present a clear indication for surgical intervention, but, before an operation can be undertaken, the nature of the intracranial lesion must be ascertained. For this percutaneous carotid angiography is found most useful. Over a period of several years, no serious complications have arisen from using this method in neurologic and neurosurgical diseases. The contrast agent is a 35 per cent solution of iodopyracet. The author presents case histories which show the different diagnostic problems presented by patients with head injuries during the first days after the accident. Without cerebral angiography the presence of the intracerebral clot will easily be overlooked. Among the cases reported by the author, there were 3 in which there was a combination of a subdural hematoma and an intracerebral hematoma. The excellent result of operative treatment on this form of intracerebral hematomas is a temptation to apply similar therapy in suitable cases of ordinary brain hemorrhages or apoplexies.

Effect of Carinamide with Heparin on Coagulation.—Since carinamide (4-carboxyphenylmethanesulfonanilide) had been used to prolong and augment the blood level of penicillin, Sirak and his co-workers decided to investigate whether carinamide might have a similar effect on heparin. The 10 patients picked at random were in the preoperative phase and their illnesses did not contraindicate the administration of heparin. The authors found that heparin in saline solution, given intravenously one-half hour after a single dose of carinamide, causes a progressive enhancement of the effect of an equal dose of heparin administered on each successive day. In 8 of 10 patients, this enhancement reached a peak in approximately three days and is manifested by a two to ten fold increase in coagulation time response to heparin. This peak is followed by a gradual return to a normal response, two to three days later. Incomplete evidence suggests that this effect may be due to the formation of a new compound and not to carinamide blockage of the renal excretion of heparin. If results can be achieved with small doses of heparin the cost of heparin therapy will be greatly reduced.

Apoplexy of Gallbladder.—Christopher and Savage report the case of a woman, aged 46, who had hypertension and in whom there occurred a large hemorrhage into the noncalculous gallbladder. They point out that hemocholecyst is the term applied by Fiessinger to massive, nontraumatic gallbladder hemorrhage. They have employed the term "apoplexy of the gallbladder." In the case reported by them there was hypertension and absence of gallstones. It is thought likely that slight bleeding may occur frequently in diseased gallbladders. If traumatic cases are excluded, massive hemorrhage from the gallbladder is almost always associated with cholelithiasis. On review of the literature 28 such cases were found to have been reported. Massive hemorrhage from a noncalculous gallbladder is rare. In addition to the case herewith presented, only 2 cases have been reported, 1 by Schnyder concerning a man, aged 72, and 1 by Fiessinger concerning a boy aged 4½ years. Hypertension has been noted in only 1 other case of massive hemorrhage, that of Hudson and Johnson, but in their case cholelithiasis was present.

Western J. Surg., Obst. & Gynecology, Portland, Ore.
56:565-604 (Nov.) 1948

New Incisions and Revised Technics in Peripheral Nerve Surgery. E. Seletz.—p. 565.
Surgical Problems in Diverticulitis of Colon. S. F. Herrmann.—p. 572.
*Early Results from Vagus Nerve Section in Treatment of Duodenal Ulcer: Report of 150 Cases. J. Weinberg and A. Kraus.—p. 577.
Discussion of Methods of Detection of Carcinoma of Uterus with Some Therapeutic Implications. J. M. Harris, L. Krohn and M. S. Priver.—p. 584.
Retained Abdominal Sponge. R. D. Forbes.—p. 588.
Anesthesia for Total Laryngectomy. A. C. Kirchhof and D. C. Boals.—p. 590.
Facilitation of Intestinal Anastomosis by Use of a Disintegrating Ring. D. N. Richards and R. L. Thomas.—p. 592.
Paraplegia Resulting from Lumbar Paravertebral Injection of Alcohol for Nerve Pain: Report of Case. P. Teng.—p. 594.
Homolateral Interstitial Pregnancy Following Salpingectomy. C. L. Buerger Jr. and B. B. Weinstein.—p. 596.

Vagotomy in Duodenal Ulcer.—Weinberg and Kraus performed vagotomy in 150 patients between the ages of 20 and 69 years with duodenal ulcer. The duration of symptoms was one to thirty years. The follow-up has extended from twelve to twenty months in 40 patients, from six to twelve months in 69 patients and from one to six months in the remaining 41 patients. Of the patients 146 have remained completely well during the period of observation. Three have persistence of ulcer symptoms, and 1 died as a result of postoperative pneumonitis. The occurrence of associated undesirable effects of vagotomy, including gastric retention, diarrhea, cardiospasm and a syndrome suggestive of hypoglycemia, is unpredictable. These side effects do not seriously weigh against the value of the operation. The advantages of the abdominal approach over the thoracic approach are so decisive that the latter method has been practically discontinued. Posterior gastrojejunostomy is now performed routinely with vagotomy to overcome the relatively frequent and unpleasant complication of prolonged gastric retention following vagotomy. Because there may be intermissions of many years between active phases of the ulcer diathesis, it is too early to predict the final outcome in the patients reported. The results thus far are superior to those experienced or seen reported with other methods of surgery over a similar period.

Yale Journal of Biology and Medicine, New Haven
21:1-112 (Oct.) 1948

Michael Servetus and the Discovery of Lesser Circulation. J. Trueta.—p. 1.
Method for Counting Blood Platelets in Small Animals. E. Adams.—p. 17.
Nature and Significance of Neutral Steroids in Human Urine in Normal and in Abnormal States: with Preliminary Consideration of Adrenal and Gonadal Steroids and Factors Which Influence Their Secretion and Biological Action. W. W. Engstrom.—p. 21.
Occurrence of Wolff-Parkinson-White Syndrome Concomitant with Acute Rheumatic Fever. J. K. Meneely Jr.—p. 87.
Differences in Resistance of Human Plasmas to Staphylocoagulase. M. Tager and Harriet B. Hales.—p. 91.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Journal of Industrial Medicine, London

5:175-244 (Oct.) 1948

British Tradition in Industrial Health. E. R. A. Merewether.—p. 175.
Early Scottish Essays in Industrial Health. T. Ferguson.—p. 180.
Victuals and Ventilation and Health and Efficiency of Seamen. F. P. Ellis.—p. 185.
Dust Sampling in Hematite Mine with Pneumoconiosis Research Unit Hand Pump. H. H. Watson.—p. 198.
*Evaluation of Skin Cleansers and Protective Creams for Workmen Exposed to Mineral Oil. C. N. D. Cruickshank.—p. 204.

Skin Cleansers and Protective Creams for Workmen Exposed to Mineral Oil.—Cruickshank points out that in many industrial processes the workman's skin is constantly exposed to mineral oils which are potentially harmful. Uncontaminated oils are invisible on the skin in small amounts, so that the effectiveness of their removal cannot be assessed by direct examination. This difficulty was overcome by utilizing the fact that most mineral oils produce a brilliant violet fluorescence when examined in ultraviolet light. The intensity of this fluorescence gives a measure of the amount of oil remaining and thus provides a means of comparing the efficiency of detergents. The efficacy of soap in various concentrations was first investigated. Soap powder is the most concentrated form of soap possible. Used alone this was unsatisfactory from a practical point of view in that the addition of water caused clumping and caking. This was avoided and the detergent properties of the soap greatly improved by using a mixture containing equal parts of wood flour and milled, dried soap powder. The wood flour, in addition to preventing caking, acts as a mild scrubber and provides an alternative surface to which the oil may become attached. The other cleansing agents examined had the defect that rinsing from the skin was difficult. Barrier creams were examined, but none gave satisfactory protection of the skin. The excessive removal of fat from the skin is discussed, and a method of investigating this problem is described.

British Journal of Tuberculosis, London

42:75-100 (Oct.) 1948

Recent Advances in Rehabilitating the Tuberculous. F. Heaf.—p. 75.
The Chick-Embryo in Sanatorium Practice. J. Cuthbert and G. G. Davidson.—p. 83.
Alveolar Cell Tumor of Lung: Report of Case. R. I. McCallum. —p. 90.

British Journal of Urology, London

20:109-160 (Sept.) 1948

Significance of Calcareous Tuberculous Glands in Abdomen in Relation to Urinary Tract. J. A. Ross.—p. 109.
Pathologically Displaced Upper Femoral Epiphysis as Foreign Body in Urinary Bladder. E. Sadek.—p. 114.
*Spontaneous Rupture of Urinary Bladder. R. A. R. Taylor.—p. 117.
Diphtheritic Cystitis and Urethritis Following Prostatectomy. G. Wolfsohn.—p. 121.

Spontaneous Rupture of Urinary Bladder.—Taylor reports the case of a miner, aged 49, who had sustained a severe compression fracture of the first lumbar vertebra. Complete retention of urine was treated by an indwelling catheter and lavage of the bladder twice daily. After about seven weeks he had an automatic bladder and his progress was satisfactory, but about four weeks later he complained of sudden severe abdominal pain in the hypogastric region, and vomited several times. On the basis of a provisional diagnosis of a perforated stercoral ulcer immediate laparotomy was advised. At operation, which was performed four and one-half hours after the sudden abdominal pain, inspection of the bladder revealed a small hole, of about the size of the lead in a lead pencil, surrounded by a dense area of induration. Since excision and resuturing were out of the question, the sigmoid colon was pulled down into the pelvis, and an appendix epiploica sutured over the perforation, and the sigmoid colon sutured over this to the bladder wall. The patient progressed favorably and again had an automatic bladder. In view of the small number of recorded cases, the mortality rate is difficult to assess; in cases in which the operation is within twenty-four hours after rupture, the mortality rate is usually given at 11 per cent; but, if after twenty-four hours, this figure rises to 55 per cent.

British Medical Journal, London

2:769-808 (Oct. 30) 1948

*Streptomycin Treatment of Pulmonary Tuberculosis, A Medical Research Council Investigation. G. Marshall and others.—p. 769.
Sudden Death Due to Ependymoma of Cerebello-Pontine Angle: Report of 2 Cases. N. E. France.—p. 782.
Skin Tests for Sensitivity to Liver. P. C. Reynell.—p. 784.
Hereditary Hemorrhagic Telangiectasia. C. P. Petch.—p. 785.
Intussusception in Adults Due to Carcinoma of Colon. R. A. C. Owen. —p. 786.

Streptomycin Treatment of Pulmonary Tuberculosis.—The investigation presented by Marshall and others was planned and directed by the Streptomycin in Tuberculosis Trials Committee of the British Medical Research Council. The 107 patients reviewed in this paper had acute progressive bilateral pulmonary tuberculosis unsuitable for collapse or any other type of treatment except rest in bed. Bed rest was the treatment given to 52 of them, while 55 patients were treated with bed rest plus streptomycin. Patients were assigned to one or the other group by random selection, and only after acceptance as suitable for the trial. The period of observation for each patient was six months. The patients treated with streptomycin were given daily 2 Gm. of streptomycin, which was administered in four intramuscular injections at intervals of six hours. There were no toxic effects that required interruption of treatment, but vestibular disturbances were common. At the end of six months 7 per cent of the patients treated with streptomycin and 27 per cent of those who were treated only by rest in bed had died. Roentgenologic examination revealed considerable improvement in 51 per cent of those treated with streptomycin and in only 8 per cent of those not so treated; for slight to moderate improvement the respective figures were 18 and 25 per cent. Apart from those who died, the percentages for deterioration were 18 and 34, respectively, for the streptomycin and control cases. Improvement in the patients treated with streptomycin was greatest during the first three months; after that many began to deteriorate. In most cases resistance to streptomycin emerged in the second month of treatment. It seems probable that resistance to streptomycin is responsible for much of the deterioration seen in patients treated with streptomycin after first improvement.

2:809-846 (Nov. 6) 1948

*Ethinyl Estradiol. T. N. A. Jeffcoate, Ursula M. Lister, Betty Hargreaves and H. Roberts.—p. 809.
*Ménière's Syndrome: Successful Treatment by Surgery on Sympathetic. E. R. G. Passe and J. S. Seymour.—p. 812.
"Rheumatoid Disease" with Joint and Pulmonary Manifestations. P. Ellman and R. E. Ball.—p. 816.
Cord Complications During Pregnancy and Labor. Joyce Morgan. —p. 820.
Hodgkin's Disease Confined to the Jejunum. G. L. Robinson.—p. 822.

Ethinyl Estradiol.—According to Jeffcoate and his associates ethinyl estradiol is an orally active estrogen first prepared by Inhoffen and Hohlweg in 1938. It is a derivative of alpha estradiol, the chemical structure of the two substances being similar. The authors decided to undertake a clinical trial of this substance mainly to assess its potency. Inhibition or suppression of lactation was chosen as the test object, as it seemed preferable to the relief of climacteric manifestations, where the interplay of psychogenic factors makes the assessment of results difficult. An attempt was made to compare the potency of ethinyl estradiol and diethylstilbestrol, both being administered orally. The results obtained in 66 women show that ethinyl estradiol is most efficient in preventing activity of the breasts. A total dose of 0.75 to 1.3 mg. spread over seven days gave good results in 21 out of 22 cases. When the total dose was reduced to 0.55 mg. the results were less satisfactory but rather better than those obtained with 35 mg. of diethylstilbestrol. Since it takes 40 to 50 mg. of diethylstilbestrol to produce good results in a high proportion of cases, it is reckoned that ethinyl estradiol is at least fifty times more active than diethylstilbestrol for the purpose of suppressing lactation. There is evidence that it is equally potent in producing other estrogenic effects; thus when it comes into general use there will be need to be caution with dosage, for otherwise ill effects such as menstrual disturbances, endometrial hyperplasia and postmenopausal bleeding, as well as toxic reactions such as nausea and vomiting, may frequently result.

Sympathectomy in Ménière's Syndrome.—Passe and Seymour say that in 12 patients with Ménière's syndrome, in whom conservative treatment had failed, Passe performed stellectomy and division of the preganglionic fibers of the first and second thoracic nerves. In 2 cases the vertebral artery was stripped, while in 4 cases it was either ligated or divided after the adventitious coat had been removed. The vertigo attributable to the pertaining ear has been completely relieved in all except 1 of the cases. Whether the recurrence of vertigo in this case was due to hypersensitivity to epinephrine or epinephrine-like bodies following excision of the ganglion (for the patient was hard at work again and under considerable mental strain), or whether some sympathetic fibers to the ear may also originate on the opposite side to a greater or lesser extent in individual cases, is not known, but the fact that there has been improvement on the administration of ergotamine would suggest that the former view is the more likely of the two, in which case division of the preganglionic fibers together with stripping and ligation or division of the vertebral artery would be the operation of choice. This has now been done in more recent cases with the same beneficial effect on the vertigo, added to which it has the advantage of avoiding Horner's syndrome. The result on the tinnitus is apparently unpredictable, though on the whole it was reduced—in 3 cases it was completely relieved. The relief seems to be more pronounced with the pulsating type of tinnitus than with the continuous variety. Each patient suffered from concomitant nerve deafness, and in all except the two most recent cases there has been improvement of hearing by both air and bone conduction. If the nerve deafness is very severe it is beyond relief.

Journal of Obst. & Gynaec. of Brit. Empire, Manchester

55:573-724 (Oct.) 1948. Partial Index

Choice of Treatment of Individual Carcinomas of Cervix Based on Analysis of Serial Biopsies. A. Glucksmann and S. Way.—p. 573.
Vascular Pattern of Placenta and Its Development in Rat. R. P. Holmes and D. V. Davies.—p. 583.
Vaginal Bacterial Flora and Ovarian Dysfunction. Nancy Laughton.—p. 608.
External Version Under Anesthesia. J. H. Peel and S. G. Clayton.—p. 614.
Child-Bearing in Tuberculous Gravidae. J. P. McIntyre and W. C. Armstrong.—p. 624.
Cerebral Venous Thrombosis in Pregnancy (Report of Two Possible Cases). Jean McNairn.—p. 630.
Some Principles of Myomectomy. N. C. Louros.—p. 635.
Care of Eyes at Birth. Mary D. Taylor and R. M. Calman.—p. 642.
*Breast Hypertrophy and Pregnancy. G. Bankoff.—p. 646.

Breast Hypertrophy and Pregnancy.—During the last five years Bankoff performed plastic reduction of hypertrophied breasts in 6 women. Four presented histories of recurrent abortion between the third and fourth month of pregnancy. All 4 patients had been under the constant supervision of a gynecologist and had undergone all necessary precautionary treatment, particularly avoiding all mental and physical strain. In spite of this, uterine contractions and hemorrhage invariably occurred after the third month of pregnancy, resulting in abortion. The 2 other women were sterile. Both had been married five years; 1 reported an occasional delay in her menstrual periods, followed by an excessive loss of blood, which pointed to a glandular disturbance if not to an early abortion. The surprising results of surgical intervention were that each patient became pregnant after the plastic reduction of the mammary glands. Five completed normal pregnancy. The last, on whom the operation was performed six months ago, is now in the fourth month of pregnancy, and there are no signs of threatening abortion. The author believes that the most feasible explanation of the connection between hypertrophy of the breasts and habitual abortion and sterility is the action of the mammary gland hormones on the pregnant uterus. It would seem that an enormous breast produces an abnormal quantity of hormone, which by the fourth month reaches saturation, thus stimulating the fibers of the myometrium and causing them to contract. This hormonal saturation in the patient with normal breasts is reached only in the ninth month of pregnancy. Further research is needed on this problem.

Lancet, London

2:675-714 (Oct. 30) 1948

Treatment of Thyrotoxicosis: Review of 350 Cases. C. Robertson.—p. 675.
Meningococcosis: A Protean Disease. H. S. Banks.—p. 677.
*Infection Through Soaked Dressings. L. Colebrook.—p. 682.
Method of Testing Analgesics in Man. A. J. H. Hewer and C. A. Keele.—p. 683.
Nebulized Penicillin and Postoperative Pulmonary Complications. E. J. Holborow and E. A. Spriggs.—p. 688.
Tuberculous Mastoiditis Treated with Streptomycin: Report of Case. O. D. Fisher and E. A. Malkin.—p. 689.

Infection Through Soaked Dressings.—Colebrook investigated the possibility that wound pathogens can readily grow through an intact dressing when it becomes saturated with exudates. A model wound was constructed and covered with the usual bandages. After repeated instillation of sterile serous fluid into the wound till the outer bandage was just moist, Pseudomonas pyocyanea or other wound pathogens were brought into contact with the outer bandage and the whole was incubated. Motile organisms such as Ps. pyocyanea and Proteus invariably passed through to the "wound" within a few hours; hemolytic streptococci and staphylococci passed through a little more slowly. It is suggested that some of the hospital cross infections of burns and scalds, which frequently weep copiously during the first few days, and probably also of other open wounds whose dressings become soaked, may arise in this way. A sheet of cellophane inserted in the dressing prevents the ingrowth of organisms, but is not the ideal barrier. A flexible and strong plastic film which is pervious to water vapor but impervious to bacteria is under trial.

2:715-754 (Nov. 6) 1948

Vocation of Medicine. L. Horder.—p. 715.
*Thrombo-Angiitis Obliterans: Results of Sympathectomy and Prognosis. J. B. Kinmonth.—p. 717.
Ovulation and Menstrual Cycle. F. Davies.—p. 720.
Thyroidectomy with Block Dissection of Neck for Carcinoma of Thyroid Gland. Marcel Dargent.—p. 721.
Penetration of Cervical Mucus by Spermatozoa: Method of Investigation. Clare Harvey and Margaret H. Jackson.—p. 723.
*Parkinsonism Treated with Parpanit. W. F. Dunham and C. H. Edwards.—p. 724.
Familial Outbreak of Staphylococcal Infection of Bone and Joint. M. H. M. Harrison.—p. 727.
Cysticercosis Resembling Myopathy. R. J. McGill.—p. 728.
*Recurrence of Duodenal Ulcer Six Months After Adequate Vagotomy. C. G. Rob.—p. 730.

Thromboangiitis Obliterans.—In a review of cases of thromboangiitis obliterans Kinmonth was able to trace 77 patients in whom the diagnosis was confirmed and of whom records were complete; 8 patients could not be traced. Thromboangiitis obliterans, or Buerger's disease, is an obliterating disease of the arteries and veins, usually affecting segments of vessels in the extremities. It has been suggested that Buerger's disease can burn itself out completely, but, since it is known that it can manifest itself afresh after many years, it seems doubtful whether it can ever be said to be completely cured. The cases fell into three groups according to the initial site of the disease, for it sometimes started in large vessels, sometimes in the small vessels and sometimes in both simultaneously. The main criterion of differentiation was the presence or absence of the popliteal pulse. Prognosis varied in the three groups as regards alleviation of symptoms by sympathectomy and survival of the limb. The author found that the best results are to be expected when the smaller vessels are affected—i. e., when the popliteal pulse is palpable. Improvement was not observed in the mixed type. In some early cases of unilateral Buerger's disease bilateral sympathectomy was performed. In several of these the disease subsequently appeared in what had been the sound limb. Hence "prophylactic" sympathectomy did not give complete protection, though it possibly delayed the onset of symptoms.

Parpanit® in Parkinsonism.—Dunham and Edwards say that parpanit® (diethylaminoethyl-1-phenylcyclopentane-1-carboxylate hydrochloride) is chemically closely related to the antispasmodics such as meperidine. In all, 25 patients with parkinsonism were carefully observed. Postencephalitic parkinsonism and paralysis agitans were about equally represented. All the patients had been receiving solanaceous drugs for more than a year. The results of this investigation have confirmed the usefulness of parpanit® in parkinsonism. No striking differences in therapeutic activity were seen on replacing solanaceous drugs by parpanit.® Sometimes one drug, sometimes the other, seemed more beneficial. Where parpanit® was effective it was equally so whether it was added to or took the place of solanaceous drugs; when combined medication was being given, withdrawal of either produced only minor effects. The side effects of parpanit® were similar to those of the solanaceous drugs, but their relative frequency and intensity were different. Thus, whereas giddiness, a sensation of weakness, dryness of the mouth and blurring of vision developed with both, the first two predominated with parpanit® and the last two with solanaceous medication. Preference for one or the other treatment may be determined by the nature of the side effects.

Recurrence of Duodenal Ulcer After Vagotomy.—Rob reports the case of a man, aged 40, who by the standards of the insulin test had an adequate resection of the vagal nerve supply to his stomach, and no evidence of its regeneration. His ulcer symptoms have recurred after six months. The insulin test performed after the recurrence of symptoms produced no free hydrochloric acid and only a small amount of combined acid. At St. Thomas's Hospital vagotomy has been performed on 37 patients for peptic ulcer. The early results in 5 patients with secondary ulceration following gastrectomy or gastroenterostomy have been very good. In the other 32 patients with duodenal ulcer numerous initial complications have been noted, including temporary severe dysphagia, persistent diarrhea and eructation of foul gas, but in no other patients have the ulcer symptoms recurred, though in 4 the operation was by the standard of the insulin test incomplete.

New Zealand Medical Journal, Wellington

47:421-534 (Oct.) 1948. **Partial Index**

Death from Cold. K. F. M. Uttley.—p. 427.
Hypertrophy of Pylorus in Adults. R. Orgias.—p. 457.
*Acute Porphyria: Case Report with Notes on Four Others. N. Little and H. Palmer.—p. 461.
Control of Eclamptic Convulsions by Pentothal Drip: Report of 2 Cases. D. P. Short.—p. 485.

Acute Porphyria.—Little and Palmer present the case of a woman, aged 32, who ten years previously had begun to have pains in the upper part of the abdomen and the loins. In 1942 an exploratory laparotomy was undertaken, adhesiolysis and removal of an ovarian cyst being performed. This procedure did not entirely relieve the symptoms. During the last five years she noticed a gradually increasing lassitude, and she began to suffer from pain in the upper lumbar region and in both groins. She became constipated. During her first pregnancy, after six years of marriage, all her pains increased and she vomited a great deal. Following the birth of her child she noticed that the attacks of pain began to be associated with vomiting, this state of affairs continuing until December, 1947, when all her symptoms suddenly became worse and she was admitted to hospital. Laparotomy was performed on the diagnosis of an intestinal obstruction. Some coils of distended small intestine were found, some adhesions were divided and a mass in the right broad ligament was observed and removed. This mass proved on subsequent examination to consist of a portion of ovarian tissue containing a follicular cyst, and fallopian tube. During the next four weeks she continued to complain of severe pain in her back and the upper part of the abdomen and her demeanor was characterized by tearful episodes and mental changes of a regressive character. Later she was admitted to a medical unit, where her condition steadily deteriorated and where a diagnosis of acute porphyria was made after porphobilinogen had been detected in the urine. As soon as the diagnosis had been established the family history was investigated; it appears reasonably certain that 2 cousins have suffered from a similar condition. Thus the hereditary nature of porphyria seems to be established. Notes on another case of porphyria are presented. The clinical history of the first patient suggests the possibility that her last illness may not have been the first porphyric episode, and the long prodromal period of lassitude with abdominal pain for ten years is of interest. Many cases reported in the literature have been diagnosed as acute abdominal crises or as hysteria. The critical urinary picture is apt to be missed if the nursing staff discard the daily urine specimens, as the pink color does not develop immediately but is most evident after forty-eight hours.

Proceedings of Royal Society of Medicine, London

41:653-734 (Oct.) 1948. **Partial Index**

The Hypothalamus and Water Metabolism. G. W. Harris.—p. 661.
The Hypothalamus and Urine Secretion. W. J. O'Connor.—p. 666.
Kostecka's Osteotomy for Correction of Prognathous Mandible. C. B. Henry.—p. 688.
Clinical Reactions and Injuries in Supervoltage Therapy. A. Jones. —p. 703.
Million-Volt X-Ray Therapy. I. G Williams.—p. 709.

Acta Dermato-Venereologica, Stockholm

28:413-522 (No. 5) 1948. **Partial Index**

Connection Between False Positive Syphilis Seroreactions and Coincident Disorders, Particularly Those of Respiratory Tract. P. Wiingaard. —p. 439.
Clinical Study of Toxic Effects of Bismuth Treatment in Syphilis. F. R. Curtz.—p. 446.
Case of Probable Transfusion Syphilis. M. Tottie.—p. 452.
*Taping (Adhesive Tape Treatment) of Leg Ulcers. O. Gilje.—p. 454.
Excretion of Biotin in Urine of Psoriasis Patients. T. Jensen.—p. 468.
Incidence of Arthroplasty in Ten-Year Series of Psoriasis Cases. C. G. Leczinsky.—p. 483.
Podophyllin Treatment of Venereal Warts. S. Emanuel and T. K. Varming.—p. 488.

Adhesive Tape Treatment of Leg Ulcer.—Gilje says that his chief object in advocating a revival of taping is that this procedure, as used at present, has yielded results superior to those of other types of treatment; it has proved beneficial in cases in which all other methods had failed. Favorable results largely depend on careful attention to certain technical details. Before taping is started the ulcer should be fairly clean, and for this reason it is advisable to precede taping by the use of wet dressings or dusting with boric acid, sulfathiazole or penicillin. In many instances taping can be commenced with benefit to the patient as soon as a portion of the ulcer is clean, the tape in those cases being affixed to the clean marginal zone, and wet dressings or dusting powders being continued in the remaining part of the ulcer. Strips are affixed with slight pressure to the skin on one side of the ulcer, placed immediately on the denuded surface and attached on the opposite side, the ulcer being somewhat contracted in this manipulation. The compression is most important when dealing with ambulant patients, where as a rule edema will be present. The quality of the tape is important; a good adhesive spread on tightly woven, strong cloth will produce the best results. The strips are then covered with a dry dressing. The tape may be changed every other or third day, according to the amount of exudation and the condition of the adjacent skin. If the discharge is considerable, there is no objection to changing the gauze dressing daily. Taping stimulates the formation of delicately grained, firm granulations. Excellent effects have been produced with this simple method.

Acta Medica Scandinavica, Stockholm

131:503-612 (Oct. 30) 1948. **Partial Index**

Lipotropic Factors. C. H. Best.—p. 503.
Relation of Hypophysis to Carbohydrate and Basal Metabolism. Cured Diabetes Mellitus and Hypothyroidism in Acromegalia. (Survey and Case Record). H. Vermund.—p. 515.
Case of Perniciosiform Anemia in Child Nineteen Months Old. P. H. D. Waagstein.—p. 547.
Studies of Erythrocyte Counting. II. Technical-Physiological Errors. H. F. Lange and H. Palmer.—p. 555.
Comparative Studies of Effect of Some Vasodilators in Angina Pectoris. E. Nyman.—p. 565.
*Chrysotherapy and Its "Toxic" Reactions in Rheumatoid Arthritis. G. Edström.—p. 571.

Chrysotherapy in Rheumatoid Arthritis.—Edström determined the gold level in the plasma and urine of 33 patients with rheumatoid arthritis who were treated with gold salts causing "toxic" reactions in 8 of the patients. Six presented dermatitis, 1 had gastrointestinal symptoms and 1 transient albuminuria. No parallelism could be demonstrated between gold concentrations in the plasma and urine during gold therapy and these untoward reactions. There was no statistically significant difference between the patients with and without "toxic" reactions. It is suggested that the reactions may be manifestations of hypersensitiveness of the organism to gold rather than of real toxic origin. Consequently, these reactions cannot be avoided. The reactions may occur after administration of small doses of gold, although they are usually less severe and of shorter duration than after the administration of large doses. A well balanced high vitamin diet is of importance for avoiding a high percentage of such reactions. Five patients with severe reactions to gold therapy were treated with BAL (2,3-dimercaptopropanol), 1.7 cc. (2.5 mg. per kilogram of body weight in 10 per cent solution in peanut oil, containing 20 per cent benzylbenzoate) every fourth hour, seven times by intramuscular route. These injections were followed by one to two injections daily for six to nine days. Results were satisfactory. The intramuscular injections of BAL were associated with local pain and infiltrations. No other symptoms of toxicity of BAL were observed. This treatment deserves further trial.

Acta Neurologica et Psychiatrica Belgica, Brussels

48:339-420 (Aug.) 1948

Systematized Nervous Diseases and Problems of Heredity (Concluded). L. van Bogaert.—p. 339.

*Surgical Treatment of Epilepsy with Focal Symptomatology. Critical Study of Results and Indications for Operation. L. Schwarz.—p. 380.

Surgical Treatment of Epilepsy.—Schwarz reports 25 cases of jacksonian epilepsy in 12 patients between the ages of 6 and 26 with encephalopathies of childhood, and in 13 patients between the ages of 21 and 48 who sustained trauma of the head, the majority of them being victims of World War II. These 25 patients were operated on in Paris by the neurosurgeon David. Four of the 12 juvenile patients made a complete recovery, 4 were improved and 4 were failures. In the adult group 4 made a complete recovery, 1 a near recovery, 5 were improved, there was 1 operative death and 1 nonoperative death, and 1 was a failure. Surgical intervention therefore was effective in 11 of the 25 patients, while partial or total failure resulted in 14. Effective surgical intervention was not limited to the motor region of the cerebral cortex but involved the precentral convolutions in 3 patients, the ascending parietal convolutions in 3 other patients, the area 8 in 1 patient, the posterior parietal region in 2 and the occipital zone in 1. At present the pathogenic basis for the surgical treatment of jacksonian epilepsy is not sufficient for envisaging a radical cure in all cases. Cases, the cause of which could be traced to childhood, and the "cryptogenic" cases offer a less favorable prognosis for surgical intervention than the post-traumatic cases with corticomeningeal cicatrization. A thorough clinical examination supported by a complete history may be sufficient for the right selection of patients to be operated on. The consideration of the latent period is of no value in patients with attacks whose cause can be traced back to childhood. The total length of time during which the patient had epileptic attacks is of great prognostic value, since surgical treatment seems to offer less chance for patients who have had attacks for more than two to three years. Irreversible character of the condition is indicated by increase in frequency of the attacks and by the tendency to repeated loss of consciousness. The coexistent deficiency of various cortical functions suggests a generalized involvement of the brain and is a serious contraindication to surgical intervention.

Anales Cáted. de Pat. y Clín. Tuberc., Buenos Aires

9:1-154 (June) 1947. Partial Index

*Syndrome of Bronchial Obstruction with Passage of Air. R. F. Vaccarezza and A. Soubrié.—p. 5.

*Experimental Stenosis of Pulmonary Artery. V. J. A. Alberti, O. C. Croxatto and A. Lanari.—p. 24.

Bronchial Obstruction with Circulation of Air.—Vaccarezza and Soubrié report 9 cases of a special type of bronchial obstruction in patients with pulmonary or bronchial tuberculosis. It is characterized by circulation of air through the stenosed segment of the large bronchi. Bronchospirometry showed that the functional value of the lung was insignificant or nil. Respiration was abolished in the corresponding pulmonary segment notwithstanding the fact that air was present in the lung parenchyma of that segment, as shown by roentgenograms. Obstruction of this type hinders the passage of air and stops aeration of the blood in the corresponding pulmonary segment, whereas it allows passage of air in sufficient amount to keep the lung expanded. Cases of atelectasis from bronchial obstruction with clear spots in the consolidated zone of the pulmonary parenchyma are due to the same mechanism as that which causes the syndrome described.

Experimental Stenosis of Pulmonary Artery. — The experiments were performed on dogs. The stem of the pulmonary artery was constricted to 50 per cent of its lumen and the experiment repeated by reoperation. The tension of the pulmonary circulation proximal to the stenosed segment of the pulmonary artery increased greatly, 27.36 mm. in systolic pressure immediately after ligation and a further increase of 32.28 mm. in the reoperation. Hypertension produced considerable dilatation of the right ventricle. There is an evident relationship between the degree of hypertension, the diameter of the myocardial fibers, the weight of the heart and the time of survival of the animal.

Ann. Chirurgiae et Gynaecologiae Fenniae, Helsinki

37:207-296 (No. 3) 1948

*On Treatment of Varicose Veins by Ligation of Saphenous Vein and Injection in Both Central and Peripheral Directions According to Ollonqvist's Method. V. Tuomikoski.—p. 207.

Meningiomas on Convexity of Skull. L. E. Laurent.—p. 229.

Occipitoposterior Position. Y. Montell.—p. 250.

Thrombosis in Patients with Tuberculosis. E. Tiitinen and E. Kallio-Koski.—p. 271.

Two Cases of Vaginal Atresia Observed in Duplex Anomalies of Genitals. K. Soiva.—p. 276.

Study of Results Obtained in Treatment of Fractures of Lower End of Radius in Insured Persons in Finland. O. Valtonen.—p. 287.

Treatment of Varicose Veins.—Tuomikoski treated 340 patients, 268 women (78.8 per cent) and 72 men (21.2 per cent), between the ages of 18 and 78 years, who had varicose veins, by ligation and injection in both central and peripheral directions. The great saphenous vein was ligated 5 to 10 cm. below the groin, and 1 or 2 cc. of 20 per cent sodium chloride solution was injected slowly in the central and 5 to 10 cc. quickly in the peripheral direction. The lesser saphenous vein was ligated 2 or 3 cm. below the knee joint, and 0.5 or 1 cc. of the solution injected in the central and 3 to 5 cc. in the peripheral direction. Postoperative injections were made in the beginning with sodium chloride or quinine-urethane, later exclusively with 10 per cent sodium morrhuate into empty veins. In 38 patients with indolent ulcer of the leg a supporting bandage was also used. Immediately after the injection pain was often felt in the limb down the foot, sometimes fairly severe, but subsiding in a few minutes. The patients were allowed to walk home and to resume their regular work. On these 340 patients a total of 494 ligations of the saphenous veins, 478 of the great and 16 of the lesser saphenous veins, were performed. In 57 per cent of the cases the dilatations were obstructed after ligation without postoperative injections. An average of 2.4 supplementary injections were required in 43 per cent of the cases. Periphlebitis occurred thirteen times (2.6 per cent), mild wound infection twice (0.4 per cent) and postoperative hemorrhage once (0.2 per cent). Necrosis of the skin occurred twice in connection with one postoperative injection of sodium chloride and one of quinine-urethane, but did not after injection of sodium morrhuate. There was no certain case of embolism. Follow-up could be done on 133 patients on whom a total of 204 ligations of the great saphenous vein and 6 of the lesser saphenous vein were performed. No signs of recurrence were noted in 90 limbs (43 per cent) while 120 limbs (57 per cent) did show recurrence. In 96 cases the great saphenous vein was entirely or partly recanalized and in 81 of these a deep communicating vein was observed to have incompetent valves. The immediate results obtained by this method are equally good and the end results are nearly as good as those obtained by high ligation and retrograde injection. The risk of embolism is probably smaller than in any other operative procedure. In all cases of incompetence of deep anastomoses the deep communicating veins have to be ligated as well.

Archives des Maladies du Coeur, Paris

41:385-480 (Sept.) 1948. Partial Index

Clinical and Experimental Research on Precordial Leads as Expression of Variations of Fields of Potential of Momentary Axes of Heart (Turning Dipoles or in Rectilineal Arrangement). Criticism of Present Concept of Doublets and of Conception of Extrinsic and Intrinsic Deflections. Remarks on Importance of Comparative Study of Axes of Standard Leads and Precordial Curves. P. Meyer and R. Herr.—p. 385.
Piezograms of Normal Persons and of Persons with Hypertension. E. Donzelot, A. Meyer-Heine, Giblin and Dessertenne.—p. 392.
Study of Auricular Complex of Electrocardiogram Under Considerable Amplification. A. Pruche.—p. 410.
Roentgenographic Pictures of Vascular Dystonia. L. Bazy, J. Huguier, H. Reboul and others.—p. 415.
Auricular Fibrillation Caused by Electrocution. C. Lian and A. Gerbaux. —p. 423.
*Remarks on Prognosis of Simple Persistent Patency of Ductus Arteriosus Based on 54 Patients not Operated on. J. J. Welti and G. Koerperich.—p. 428.

Persistent Patency of Ductus Arteriosus.—Welti and Koerperich report 54 patients, 17 men and 37 women, with persistent patency of ductus arteriosus. Thirteen were not heard from, 7 died and 34 have been followed up, 15 for less than five years, 8 for five to ten years, 5 for ten to fifteen years and 6 for fifteen to twenty years. Four of the 34 patients were aged less than 10 years, 7 were between the ages of 10 and 20, 10 between the ages of 20 and 30, 6 between the ages of 30 and 40, 4 between the ages of 40 and 50 and 3 aged 53. These 34 patients are leading a life near to normal, their hearts do not seem to become enlarged from one examination to the next, functional symptoms if present are mild and have not become aggravated with increasing age. Pregnancies are possible at least in a limited number. Of 14 women in the child bearing age period, 3 had 3, 2 had 2, and 4 had 1 child. The study of the 7 fatal cases showed that an accident may occur suddenly and death may result rapidly if not immediately. Infectious endarteritis seems to result less frequently in France than in the United States and England. Sixteen of the 34 patients have been studied in detail, and their condition apparently did not justify surgical intervention. Two of them, however, died suddenly. Although the statistics as a whole are less unfavorable the authors believe that surgical intervention for patent ductus arteriosus may have been omitted in France too often. Hesitation may be permissible but seems less warranted in the presence of definite dyspnea or decisive handicap in the general development of a young person.

Archivos de Pediatría del Uruguay, Montevideo

19:513-576 (Sept.) 1948. Partial Index

*Vulvovaginitis, a Frequent Complication of Measles. M. Schachter. —p. 533.

Vulvovaginitis with Abscess in Measles.—Schachter says that this condition is rare. He reports a case of acute vulvovaginitis with an abscess complicating benign measles. The condition is very painful. Treatment consisted of local warm compresses, irrigation with a very mild permanganated tepid water and administration of a sulfonamide drug in daily doses of 3 Gm., for two consecutive days. The abscess opened spontaneously and the lesion was healed in forty-eight hours.

Arch. Soc. Oftalmológica Hispano-Americana, Madrid

8:981-1056 (Oct.) 1948. Partial Index

*Rare Finding During Dacryocystitis. A. Alcala Lopez.—p. 1048.

Rare Finding During Dacryocystitis.—In a man 26 years of age a small tumor had developed at the age of 11 in the area of the right lacrimal duct. The tumor had disappeared and left as a sequel chronic suppurative dacryocystitis with a fistula. During a successful operation, which consisted of removal of the lacrimal sac, a canine tooth was found in the place previously occupied by the lacrimal sac. The tooth, the tissues about it and the fistula were removed. The author believes that the fistula corresponded to a dermoid cyst which contained the tooth. No similar finding in the lacrimal sac was previously reported in the literature.

Dermatologica, Basel

97:1-192 (No. 1 to 3) 1948. Partial Index

Effect of Podophyllin on Condylomas and Other Warts. F. Wyss-Chodat.—p. 1.
Substances with Antihistaminic Effect. W. Stalder.—p. 10.
Granulomatosis Disciformis Chronica et Progessiva (Atypical Tuberculosis). G. Miescher and M. Leder.—p. 25.
*Observations on Keratosis Follicularis "Epidemica" (Basel Disease). O. Schenker.—p. 35.
Experience with Vitamin D_2 in Lupus. R. Lenggenhager.—p. 40.
*Etiology of Woodcutter's Eczema. F. Tenchio.—p. 72.

Keratosis Follicularis "Epidemica" (Basel Disease).—Schenker reports that in the fall of 1946 keratosis follicularis was observed in "epidemic" form in many patients in insane asylums in Switzerland. It developed in patients who were occupied in separating the tinfoil used in packing butter, cheese, cigarets, etc., from the attached paper, for the purpose of salvaging the tinfoil. Since February 1946, a new mixture of wax and paraffin with some additions had been used as paste, and the question now arose whether the cause of the disorder might not be contained in this mixture. This assumption is supported by the fact that in the factory in which the tinfoil was produced, the same disorder appeared in the workers who tended the machine which attached the paper to the tinfoil by means of the mixture and also in a worker who tended the machine mixing the paraffin.

Woodcutter's Eczema.—The eczema of lumber workers, described by Tenchio, is usually localized in the waistline which the workmen are in the habit of girding with a scarf or sash. It is also seen round the neck of persons who transport wood on their shoulder. The fact that the eczema never attacks persons working on young trees, but only those felling older trees, gave rise to the theory that a lichen on the old tree trunks, viz., the Parmelia caperata, might possibly be the cause of the eruption. Experiments made with the lichen itself and with an extract prepared from it proved the correctness of this supposition. But the lichen only induces the eczema when accompanied by severe sweating and exposure to sunlight.

Krebsarzt, Vienna

3:401-440 (Nov.) 1948. Partial Index

Contribution to Early Diagnosis of Prostate Carcinoma by Demonstration of Tumor Cells in Prostate Secretion. H. Haschek and W. Gütter.—p. 401.
Short Distance Roentgen Irradiation of Superficial Neoplasms. F. Hammer.—p. 411.
Adenoma of Thyroid with Solitary Metastasis Into Sternum. H. Hyden. —p. 418.
*Primary Lymphosarcoma of Stomach and Its Relations to Peptic Ulcer. H. Kreitner.—p. 423.

Lymphosarcoma of Stomach and Peptic Ulcer.—Kreitner says that in the course of two years 5 lymphosarcomas of the stomach were treated at a Vienna clinic. A correct diagnosis was never made before the operation. Three times a peptic ulcer was suspected and in the other 2 cases it was assumed that malignant degeneration had taken place in a peptic ulcer. The true nature of the lesion was revealed only by microscopic study. In 4 of the patients two thirds of the stomach was resected and in one case the antrum was resected. In this instance the primary sarcoma was not removed and this patient died six months later with metastases in the liver and kidney. The other patients are still alive; however, only two years have elapsed since operation in the earliest case. The author points out that many observers have assumed the possibility of the development of lymphosarcoma from a peptic ulcer, although this has not been definitely demonstrated, and there are some who reject such a pathogenesis. Three of the 5 patients observed by the author had had ulcer symptoms for years before the lymphosarcoma was discovered, and 1 had been unsuccessfully treated for a duodenal ulcer. The 5 cases of lymphosarcoma seen at the author's clinic were detected among 69 gastric carcinomas and 350 peptic ulcers. The average age of the 5 patients was 53 years. The site of predilection seems to be the prepyloric and the antral region. Eighteen months is the average survival time when the lymphosarcoma remains untreated; with surgical treatment the prognosis is about the same as in gastric carcinoma, but the radio sensitivity of lymphosarcoma is better than that of carcinoma.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

92:3157-3268 (Oct. 9) 1948. Partial Index

Case of Postvaccinal Myelitis and Recent Investigations on Postvaccinal Encephalitis. P. H. Kramer.—p. 3172.
Defect of Septum Atriorum. F. S. P. van Buchem and J. L. van Wermerskerken.—p. 3180.
Course of Open Pulmonary Tuberculosis During the War. J. F. Droogleever.—p. 3188.
*Herpes Zoster in Spondylarthrosis Deformans and in Hernia of the Nucleus Pulposus. A. M. L. de Haas.—p. 3195.

Herpes Zoster in Spondylarthrosis Deformans and in Hernia of Nucleus Pulposus.—According to de Haas herpes zoster is chiefly a disease of the peripheral sensory neuron. This neuron may became predisposed to an attack by the zoster virus when it has become impaired by another process. Such impairment may be caused by various disorders of the spinal column. The author reports 2 cases of severe spondylarthrosis and 1 of hernia of the nucleus pulposus. In these cases herpes zoster developed in the areas of the peripheral sensory neurons that correspond to levels of the spondylarthroses and the disk hernia, respectively.

Nordisk Medicin, Stockholm

40:1755-1804 (Oct. 1) 1948. Partial Index

*Effect of Desoxycorticosterone Acetate and Sodium Chloride in Orthostatic Anemia and Postural Hypotension. R. Luft and B. Sjögren. —p. 1764.
*Leukemia and Phosphatase. J. B. Dalgaard.—p. 1767.
*Additional Cases of Nephropathia Epidemica. G. Myhrman.—p. 1770.
Artificial Kidney, Its Forms and Indications. E. Ask-Upmark and O. Hogeman.—p. 1773.
Trauma and Peptic Ulcer. H. Malmros and A. Norden.—p. 1775.
Folic Acid Treatment in Macrocytic Anemia in Sprue Refractory to Liver Treatment. N. R. Christoffersen and F. Heintzelmann. —p. 1779.
Doca (11-Desoxycorticosterone) Treatment in Crisis of Addison's Disease. H. Simonsen.—p. 1780.
Fatal Air Embolism After Insufflation of Eustachian Tube. I. Hagness. —p. 1781.
Air Embolism After Insufflation of Fallopian Tube. K. Kulseng-Hanssen.—p. 1783.

Effect of Desoxycorticosterone Acetate and Sodium Chloride in Orthostatic Anemia and Postural Hypotension.—Luft and Sjögren report that in 2 cases of postural hypotension treament with *20* mg. desoxycorticosterone acetate and 10 Gm. sodium chloride daily resulted in a moderate rise in systolic and diastolic pressure; the patients could stand upright and walk about relatively well and return to a fairly normal way of life. In the 2 cases of orthostatic anemia similarly treated the abnormal orthostatic changes disappeared and the patients were subjectively well and again able to lead a normal life. Continued supply of desoxycoricosterone acetate was furnished by tablet implantation (5 tablets of 100 mg. each), administration of the hormone in crystalline suspension (injection of 50 mg. every other week) or by tablets orally (5 mg. daily).

Leukemia and Phosphatase.—Dalgaard estimated the serum phosphate in 25 cases of leukemia by the Buch and Buch method mainly in relation to variations in the leukocyte count on roentgen treatment. In patients with lymphatic leukemia, aleukemic myelogenous leukemia and plasmacellular leukemia the values were normal before and after roentgen treatment. In chronic myeloid leukemia there was usually, coincident with the reduction in the leukocyte count, a distinct rise in serum phosphatase after roentgen treatment; in 2 cases, however, the phosphatase reaction was negative. The reduction in the number of mature leukocytes is believed to be decisive for the phosphatase reaction. Histochemical investigations according to Gomori show abundant phosphatase in these cells. The improvement reported in the literature in leukemia patients treated with radioactive phosphorus seems to occur predominantly in patients with chronic myeloid leukemia, and it is suggested that the treatment should be applied in selected patients shown to be phosphatase positive.

Additional Cases of Nephropathia Epidemica.—Myhrman reports 8 new cases of an infectious disease of unknown origin observed in Northern Sweden and previously described by him and others. It is marked by acute onset with fever, abdominal pain and transient nephrotic syndrome.

Oncologia, Basel

1:72-128 (No. 2) 1948

Changes in Blood Protein Bodies in Patients with Malignant Tumors. C. Wunderly and F. Wuhrmann.—p. 73.
Cancer of Breast in Zurich. H. R. Schinz and C. Botsztejn.—p. 91.
*Mammary Cancer in Man (Question of Relation Between Mammary Cancer and Sex Hormones). C. Botsztejn and H. R. Schinz.—p. 110.

Mammary Cancer in Man.—Reviewing the present status of knowledge on the relationship between sex hormones and mammary cancer, Botsztejn and Schinz point out that animal experiments on mice from breast carcinoma strains indicate that estrogenic hormones favor the development of mammary cancer whereas androgenic hormones are antagonistic to it. The authors cite clinical observations on this problem and review observations on 11 breast cancers that were observed in men during a period when 1,027 women with breast cancer were treated. Thus the incidence of male to female mammary cancer is about 1 : 100. As regards the microscopic structure and the clinical course, carcinoma of the male breast does not differ from carcinoma of the female breast. Apparently gynecomastia is the factor that predisposes to the development of cancer of the breast in men. The treatment of gynecomastia with male hormone may act prophylactically against carcinoma. After cancer has developed, treatment with sex hormones is only an adjuvant to other treatments. Surgical treatment or radium therapy must not be omitted. Castration, roentgen sterilization *and estrogenic hormones are contraindicated in men; their value* in women is not proved. A trial with male hormones is justified as a palliative measure in cancer of the breast in both sexes.

Wiener klinische Wochenschrift, Vienna

60:677-692 (Oct. 22) 1948. Partial Index

*Experiences with Epidemic of Poliomyelitis in 1947. E. Lorenz.—p. 677.
Surgical Removal of Blood from the Filled Operative Cavity After Pneumolysis. K. Janauschek.—p. 680.
Contribution to Differential Diagnosis of Sprue. R. P. Koenigstein. —*p. 681.*
General Problems of Irradiation Therapy. K. Weiss.—p. 683.

Epidemic of Poliomyelitis.—Lorenz reports 168 children with acute anterior poliomyelitis who were admitted to the pediatric clinic and the ward for infectious diseases in Graz, Styria, in 1947. Contrary to expectation, the highest incidence was observed among children aged 7 and 8, rather than in infants, and the incidence decreased rapidly in children between the ages of 12 and 14. Only 45 per cent of the patients were suckling babies and infants, while 55 per cent were between the ages of 6 and 14 years. There were only 5 deaths, 4 of them in children of preschool age. This mortality rate of only 3 per cent as compared to that of 8 to 10 per cent in epidemics of previous years may be explained by the clinical aspect of the cases reported. Fifty-four—i. e., one third of the cases—were of the meningeal, aparalytic type, with signs of severe irritation of the spinal cord and decisive changes in the cerebrospinal fluid; 93 cases (55.4 per cent) were of spinal paralytic type and only 20 cases (12 per cent) were of cerebral paralytic type. There was only 1 case of spinal ataxia. On admission only 14 of the 168 patients (8.3 per cent), 10 of spinal paralytic and 3 of cerebral paralytic type, had a normal cerebrospinal fluid; 128 patients, 44 of them of the meningeal type, 71 of the spinal paralytic and 13 of the cerebral paralytic type, had pleocytosis and normal albumin level; 20 patients had pleocytosis with elevated albumin level; only 6 patients presented Guillain-Barré's albuminocytologic dissociation. After three or four weeks' duration of the disease the cerebrospinal fluid was restored to normal in only 96 patients, 15 had pleocytosis, 8 pleocytosis and increased albumin content, but 45 presented albuminocytologic dissociation, which shows that in poliomyelitis increase in lymphocytes does not always parallel that in albumin. Recurrent increase in lymphocytes but little increase in albumin was observed in 8 patients between the ages of 4 months and 13 years, in the third week of the disease after the cerebrospinal fluid had been improved but not yet restored to normal. There was a long period of convalescence in all patients, and the cerebrospinal fluid did not become normal for some months.

Book Notices

Virus Diseases of Man. By C. E. van Rooyen, M.D., D.Sc., M.R.C.P., Research Member and Professor of Virus Infections, Connaught Medical Research Laboratories and School of Hygiene, University of Toronto, Toronto, and A. J. Rhodes, M.D., F.R.C.P., Research Associate and Associate Professor of Virus Infections, Connaught Medical Research Laboratories and School of Hygiene, University of Toronto. Cloth. Price, $22.50. Pp. 1202, with 43 illustrations. Thomas Nelson & Sons, 385 Madison Ave., New York 17, 1948.

Since the first edition of this outstanding monograph covering the field of human and animal virus infections appeared in 1940, many advances have been made in this field and at least twenty new viruses have been discovered. That both the fundamental and applied aspects of virus research have made rapid strides is fully reflected in the extensive revisions and expansions of the text. The authors have critically reviewed and appraised with due regard to respective value every publication on virus infections in the ten year period between 1938 and 1948. For an actively developing field with its ramified ecologic implications this revision was indeed urgently needed. They have added 270 pages to the 1940 edition and vigorously condensed and eliminated unessentials. In so doing, they dropped the chapter by T. J. Mackie which reviewed, in a readable form, the historical evolution of the knowledge of the viruses of man and animals. This minor omission is well counterbalanced by the inclusion of a store of newer information on some statistical methods in virus studies, serologic technic, the fertile egg in the study of viruses and other phases. Each chapter of the eighty-nine which deal with the various aspects of the respective virus infections is admirably balanced and contains concise data concerning the clinical aspects with reference to diagnostic aids, immunoprophylaxis and specific therapy and antibiotics if available. It satisfies the needs of the teacher, clinician and laboratory worker. For example, the chapters on the variola-vaccinia virus carries in 25 pages nearly 1,500 references, and the review on poliomyelitis required a bibliography of 1,000 references on 24 pages. A complete index and excellent printing of the text with well chosen illustrations and readily readable tabulations and charts recommend this work as the most complete reference book on the virus infections of man.

A Handbook for the Diagnosis of Cancer of the Uterus by the Use of Vaginal Smears. By Olive Gates, M.D., Pathologist, Massachusetts State Tumor Diagnosis Service, Boston, and Shields Warren, M.D., Assistant Professor of Pathology, Harvard Medical School, Boston. With a foreword by George N. Papanicolaou, M.D., Ph.D., Associate Professor, Department of Anatomy, Cornell University Medical College and New York Hospital, New York. Paper. Price, $4. Pp. 182, with 50 plates. Harvard University Press, Cambridge 38; Oxford University Press, Amen House, Warwick Sq., London, E.C. 4, 1947.

This book, devoted to the study of vaginal, cervical and endometrial cells and their malignant components, is a valuable one. The careful and well judged arguments, pro and con, for the value of the smear are fair and carefully considered. The authors admit freely their difficulties with certain types of cells and the necessity of prolonged study and observation before qualifying as an expert in this method of diagnosis. They have carefully set forth the methods best suited for collecting, preserving and staining the specimens so that any one interested in the problem can soon learn how to obtain and stain satisfactory specimens. Gates and Warren discuss the morphology and normal histology in chapters that are easy to read and clearly written. The descriptions of malignant cells and their characteristics are well done. The whole text is honest, clear, concise and as important a contribution as has been made by any one in the study of this new method of diagnosis. The photomicrographs that illustrate the normal and malignant cells are beautiful and characteristic of the work of their laboratories. It is the reviewer's belief that the grouping of the photomicrographs might have been done better for the neophyte and that perhaps the doubtful cells pictured might have been left out all together. The illustrations with the easily understood captions are extremely satisfactory and probably will mean more to an interested pathologist than any group of photomicrographs as yet published. This book is important and should be a must for all laboratories interested in the cytology of normal and malignant cells.

Gynaecological Histology. By Josephine Barnes, M.A., D.M., M.R.C.P., Assistant, Obstetric Unit, University College Hospital, London. Cloth. Price, 30s. Pp. 242, with 162 illustrations. Harvey & Blythe, Ltd., 6 Hanover Square, London, W. 1, 1948.

This small book was written with the object of providing a simple guide to the histology of the normal and abnormal tissues encountered in gynecologic practice. All but one of the illustrations consist of photomicrographs from actual slides. The author hopes that the majority of the readers will have access to slides so they can compare the appearance as seen under the microscope of the tissues described and illustrated in the book.

The book contains 162 illustrations and only sufficient text material to explain the chief points in the histology of the tissues which are illustrated. The choice of material is excellent, the photographs are all that can be desired and the text is written in clear simple language. This book should prove to be most helpful to all young gynecologists and to older ones who never had training in gynecologic pathology. Certainly any one who performs gynecologic operations must possess the knowledge which this book imparts. The author and the publishers are to be congratulated on having produced an excellent. compact book on gynecologic histology.

Textbook of the Rheumatic Diseases. Edited by W. S. C. Copeman, O.B.E., M.D., F.R.C.P., Physician to the Rheumatism Department and Lecturer in the Medical School, West London Hospital, London. Cloth Price, $12.50. Pp. 612, with 351 illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

Here, typical of many recent works in medicine, is a composite volume to which twenty-four noted British physicians have contributed. This is the first book exclusively devoted to rheumatic diseases developed in Great Britain. The work begins with a discussion of the nomenclature and classification of rheumatic diseases and then devotes separate chapters to all of the different forms from rheumatic fever to sciatica. Other chapters are concerned with differential diagnosis, pathology, radiology, physical therapy, orthopedics and psychiatric considerations. The classification adopted is one developed by a special committee of the Royal College of Physicians. The historical article indicates the antiquity of rheumatic disease, which was described by Hippocrates. Indeed, remnants of arthritis have been found in bodies far antedating the time of Hippocrates. The historic chapter has an excellent bibliography. Since every part of the body is concerned in rheumatic diseases, sections are devoted to the skin and to the anatomy and physiology of pain. The book is beautifully printed on good enamel stock so that the illustrations are among the best available in any work of this character. Among the most important of the discussions is the consideration of weight reduction in cases of osteoarthritis in which treatment may fail unless weight reduction is assured. The consideration of fibrositis, which is a subject of considerable controversy, is adequate; it is discussed in relation to every phase of diagnosis, pathology and treatment of the disease. Several volumes on the rheumatic diseases are available in the American literature. American readers will be especially interested in some of the differences in point of view that prevail among British writers.

Health of Workers Exposed to Sodium Fluoride at Open Hearth Furnaces. Prepared by direction of the Surgeon General by J. Walter Hough and others, Industrial Hygiene Division, Bureau of State Services. Public Health Bulletin No. 299, Federal Security Agency, Public Health Service. Paper. Price, 25 cents. Pp. 61, with 2 illustrations. Supt. of Doc., Government Printing Office, Washington 25, D. C., 1948.

This government document presents an authoritative report of a complete and exhaustive study of the subject conducted by the Industrial Hygiene Division of the U. S. Public Health Service on the request of representatives of the Republic Steel Corporation and the United Steelworkers of America, C. I. O. Numerous questions have arisen concerning the effects of sodium fluoride on health in industry, particularly in connection with its use in open-hearth operations in steel mills. Suspicion of potential health hazards inherent in its use has provoked much labor unrest. Workers have complained bitterly about its use.

Field work was conducted in four Republic Steel Corporation plants in Ohio. Medical examinations were made of 350 men, distributed as follows: One hundred and eighty-seven in two plants now using sodium fluoride, 63 in a plant where sodium fluoride formerly was used and 100 as a control group in a plant which had never used sodium fluoride. Laboratory investigations included determinations of amounts in the air of: fluorine, total fume, oxides of iron, and manganese. Roentgen diffractions were made of fume and dust. Urine samples were studied to determine their fluorine content.

The medical and dental study included a detailed occupational history and a record of past diseases, operations and injuries. Present symptoms were recorded with special emphasis on irritative effects of fume. A complete physical examination was performed with attention directed toward any evidence of lens opacity and inflammation of the mucous membranes of the eyes, nose and throat. A roentgenogram of the chest was taken of each worker as well as one of his left wrist and forearm. A clinical oral examination was made of each employee.

Concentrations of iron oxides and manganese fumes were below the accepted maximum allowable concentrations, and it is concluded that they would not constitute a significant health hazard. On a basis of physical and roentgen observations, there were no definite changes attributable to sodium fluoride. It was concluded that exposure to sodium fluoride has little or no disabling effect on the tissues and structures of the oral cavity and that sodium fluoride does not produce tissue necrosis when introduced into the oral cavity in the atmospheric concentrations reported. However, sodium fluoride, in combination with other fumes and dusts, may be a contributing factor in producing soft tissue inflammation in the mouth.

From these findings, it appears that sodium fluoride does not constitute a significant health hazard under the industrial environmental conditions of this study.

Recommendations are submitted with a view to reducing the density and irritation of smoke and fume produced in this industrial process.

Index of Treatment in Small-Animal Practice. By Hamilton Kirk, M.R.C.V.S., Official Veterinary Surgeon to Clapton Greyhound Stadium, London. Cloth. Price, $10. Pp. 773, with 154 illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves, Baltimore 2, 1948.

The author has gathered a vast store of information on veterinary therapeutics, particularly that which pertains to the treatment of dogs and cats. This has been segregated from general discussions in current articles, has been condensed to concise form and is presented as an alphabetic, encyclopedic treatise on the alleviation of the ills of dogs and cats. The diagnosis is not a part of the text, having been discussed in a preceding volume.

Part I of the book (consisting of 146 pages) presents a systematic discussion of the several types of therapy—actinotherapy, radiant heat therapy, electrotherapy, chemotherapy, hormone therapy, vaccine and serum immunization and therapy, nonspecific vaccine therapy, vitamin therapy, the barbiturates, the antiseptics (wound, intestinal and urinary) and the anesthetics (local and general).

Part II (consisting of 479 pages) provides the body of the book, with an alphabetic, encyclopedic discussion of conditions varying from abdominal pain to yawning.

Part III (96 pages) describes the procedures for handling and restraint, administration of medicine, nursing the sick, food and feeding, disinfectants and disinfection, euthanasia and rat extermination and includes a posologic table, general information and tables, the poison acts and an addendum which presents recent information on penicillin, sulfamezathine,® (2-sulfanilamido-4,6-dimethylpyrimidine), leptospiral jaundice, eczema or pruritus, anorexia and marasmus, encephalitis and sarcoptic mange.

All this information is made available through an index of 42 pages. In one notable respect it differs from most texts printed in the United States: The discussion, the tables and the index include the proprietary remedies commonly merchandised in Great Britain along with the pharmaceutic drugs and their dosages and actions. For the person who has arrived at a diagnosis, the book presents a vast assortment of opinions and suggestions for treatment.

Methods in Medical Research. Volume I. Van R. Potter, Editor-in-Chief. Assay of Antibiotics, Henry Welch, Editor; Circulation—Blood Flow Measurement, Harold D. Green, Editor; Selected Methods in Gastroenterologic Research, A. C. Ivy, Editor; Cellular Respiration, Van R. Potter, Editor. Cloth. Price, $8. Pp. 372, with illustrations. Year Book Publishers, Inc., 304 S. Dearborn St., Chicago 4, 1948.

This volume is the first of a series, presenting descriptions and critical evaluations of methods, apparatus and step by step procedures in various fields of biologic and medical research. The present publication covers four fields: (1) assay of antibiotics, (2) circulation—blood flow measurement, (3) selected methods in gastroenterologic research and (4) cellular respiration. Each section is in charge of an associate editor, and some contain contributions and comments by particular experts on special aspects, so that altogether some fifty contributors and reviewers have added their knlowledge to this compilation.

This book and others to follow will meet a long felt need in biologic and medical laboratories, and should also be of considerable interest to physicians who wish to know the basis on which many of the facts which they use in practice have been established. The authors and publishers are to be congratulated on a useful service, well performed.

Radiotherapy and Cancer. By A. G. C. Taylor, M.R.C.S., L.R.C.P., D.R., Joan Lassetter, M.B., Ch.B., D.R., and T. K. Morgan, M.B., M.R.C.S., D.M.R. (T), Radiotherapists of the Wessex Radiotherapy Board. Boards. Price, 7s. 6d. Pp. 81. H. K. Lewis & Co., Ltd., 136 Gower St., London, W.C. 1, 1948.

This booklet of 81 pages illustrates the trend in radiotherapy in a scheme of socialized medicine. The radiation therapy is given at a specially equipped and staffed center. Briefly, the work explains the mode of action and the effects of treatment with radium and roentgen rays, how cases are selected for treatment and, in brief form, the methods employed. The authors are the radiotherapists of the Wessex Radiotherapy Board, controlling the facilities for radiotherapy and the radiotherapeutic staffs at Southampton, Bournemouth and Portsmouth. In the second part of the book they give their ideas as to how cancer should be treated. These views are generally accepted in radiotherapeutic circles. Although surgical treatment is nearly always ignored if there is no hope of cure, these patients are given the benefit of radiotherapy for palliation. In a large percentage of cases the program of treatment is dependent on whether it is decided to try to cure or to palliate or whether to leave alone.

Hematology. By Cyrus C. Sturgis, Professor of Internal Medicine, Chairman, Department of Internal Medicine, University of Michigan Medical School, Ann Arbor, Michigan. Fabrikoid. Price, $12.50. Pp. 915, with 80 illustrations. Charles C Thomas, 301-327 E. Lawrence Ave., Springfield, Illinois, 1948.

The American textbooks on hematology are continually increasing. In 1897 the only American text was that of Richard C. Cabot.

Sturgis' book is published in large readable type on heavy glossy paper. Two features make it distinctive: (1) a detailed, comprehensive approach to history and (2) a truly comprehensive review of the literature. The historical discussions are not to be found in any other similar book. Sturgis points out in his preface how the development of the historical approach leads to a better understanding of a disease condition or therapeutic maneuver and to a better fixation of the disease in memory. The references to the literature are given in full at the bottom of the page on which they are cited. They are also repeated in alphabetical order at the back of the book; altogether, about 100 pages are devoted to references.

This sound book is recommended to students and practitioners. Functional pathology is not stressed, and because of this the book not infrequently suffers. The conventional or nosologic approach is probably best for the student.

The book begins, not with a discussion of embryonic blood formation or of hematopoiesis, as is customary, but with a chapter on anemia. Although this highlights the practicality of the work, some students might carp at the rather scant attention paid to fundamental cytology and hemopoiesis.

The chapter on pernicious anemia is outstanding. That on erythroblastosis fetalis is rather sketchy. There is an excellent chapter on agranulocytosis. An 18 page chapter on sternal puncture and an 80 page chapter on blood transfusion and blood substitutes complete the book.

The colored lithographs are in general "muddy" and could be much better. The line drawings are good. The artistic merit of the big word "hematology," which occupies the entire "backbone" of the book, is to be questioned.

In summary, this new book on hematology, which emphasizes the practical, the historical and the bibliographic approach, should be of great value to the student and practitioner; the outstanding bibliography will be of value to the investigator of source material.

An Introduction to Medical Mycology. By George M. Lewis, M.D., Associate Professor of Clinical Medicine (Dermatology), Cornell University Medical School, New York, and Mary E. Hopper, M.S., Third edition. Cloth. Price, $8.50. Pp. 366, with 105 illustrations. Year Book Publishers, Inc., 304 S. Dearborn St., Chicago 4, 1948.

Many improvements have been incorporated in the third edition of this volume. There is an even greater number of the excellent illustrations than in previous editions, and the appearance of this volume has been generally streamlined. More data on the physiology of fungi have been added. Cross sensitization between penicillin and certain dermatophytes is discussed. A number of additional fungi have been included in the chapter on pathogenic fungi. The discussion of tinea of the scalp has been brought up to date on the basis of the authors' observations during the recent scalp ringworm epidemic.

In some parts of the book, such as in the chapter on otomycosis, the more recent advances in knowledge, acquired during the war, have not yet been included. Some of the debatable statements made and directions given in previous editions, including, for example, the "ritual" for prevention of tinea pedis, have been retained. However, this well recognized book is the most useful and practical volume on medical mycology, particularly for the dermatologist.

Microbiology and Pathology. By Charles F. Carter, B.S., M.D., Instructor in Pathology and Applied Microbiology, Parkland Hospital School of Nursing, Dallas, Texas. Fourth edition. Cloth. Price, $5. Pp. 845, with 241 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1948.

This edition, as were the previous editions, is designed primarily for use in training schools for nurses. For this purpose, it still retains exercises at the end of each chapter in the form of true and false questions and completion tests of sentences that apply to contents of each chapter. In bacteriology, a discussion on sulfonamide compounds and antibiotics has been added. An attempt is made to use some of the newer nomenclature and at the same time retain the old. Improved methods of immunization are discussed in a new chapter. In the section on pathology, considerable material has been revised. A chapter on defects of body development is a new feature. Good illustrations have been added, but many of the old black and white and colored could have been replaced by more modern photographs. The book is recommended especially for use in courses of bacteriology and pathology for nurses.

The Child in Health and Disease: A Textbook for Students and Practitioners of Medicine. By Clifford G. Grulee, M.D., Rush Professor of Pediatrics, University of Illinois, Chicago, and R. Cannon Eley, M.D., Associate in Pediatrics and Communicable Diseases, Harvard University Medical School, Boston. Cloth. Price, $12. Pp. 1066, with illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

This new volume was begun before the recent war and was delayed in publication by the stresses of that period. When the war ended a complete revision of each of the contributions became necessary. In the introduction the editors point out that the shortage of pediatricians makes necessary much more training of general practitioners to meet the needs of practice in this field. The present volume is a collection of articles written by a great number of contributors to pediatric knowledge. The book is classified by disturbances of various systems of the body and by various types of disease. Special sections are concerned with adolescence, and there is a section on surgical pediatrics. A final chapter discusses a variety of subjects not easily classified. The book is printed on an excellent quality of paper stock with fine illustrations, charts and tables. The book is authoritative in its statements, succinct in its presentation and bound to be helpful to both specialists and general practitioners, as well as to students.

Les varices de la grossesse et leur traitement principalement par les injections sclérosantes. Par Raymond Tournay et Pierre Wallois. Paper. Price, 250 francs. Pp. 139, with 12 illustrations. L'Expansion scientifique française, 23 rue du Cherche Midi, Paris 6ᵉ, 1948.

This is a well written, concise monograph on the management of varicosities of the lower extremities, vulva, vagina, rectum and suprapubic region during pregnancy. The authors believe in a strong hereditary factor, discount the pressure of the enlarged uterus as an important causative agent, but believe in an endocrine influence on smooth muscle to explain the venous atony and back pressure during the pregnant state. They describe the clinical picture and complications illustrated with excellent, large photographs. In addition, excellent black and white drawings are used in the text. They believe in the injection treatment of varicosities, no matter where they are situated. They do not believe in preliminary ligations combined with sclerosing therapy, nor do they seem to limit their injections to cases of a valvular insufficiency of the saphenous system. The monograph may be recommended to obstetricians to stimulate their interest in this complication of pregnancy. The suggestions regarding prophylaxis, early treatment and prevention of postpartum phlebitis are sound. Their method of treatment, which does not eliminate the valvular insufficiency of the deep venous systems of the leg and pelvis from sclerosing therapy, is highly debatable.

An Introduction to Color. By Ralph M. Evans, Color Control Department Head, Eastman Kodak Company, Rochester, N. Y. Cloth. Price, $6. Pp. 340, with 304 illustrations. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16; Chapman & Hall, Ltd., 37-39 Essex St., Strand, London, W. C. 2, 1948.

The author, who is head of the color control department of the Eastman Kodak Company, has written a valuable book on the physics, physiology and psychology of color. The description of the rather complex physical conditions which determine color is lucid and accurate in spite of the use of nontechnical language, and is discussed on the basis of numerous diagrams. The physiologic and psychologic factors which determine the perception of brightness and color are discussed in detail and illustrated by beautiful color plates. The work deviates greatly from previous classical texts of this field and must be considered as a valuable supplement to the physiologic literature on color vision.

Disfunciones motoras del estómago. Por el Doctor E. Arias Vallejo. Prólogo del Profesor E. Oliver Pascual. Paper. Price, 35 pesetas. Pp. 155, with 66 illustrations. Agencia Garsi Publicidad Médica, Cava Baja, 11, Madrid, 1947.

This monograph on the motor dysfunctions of the stomach is well written and contains a large amount of information, mainly obtained from the literature. However, there are many illustrations and records of observations made by Vallejo himself. He makes some interesting observations on the slowing of gastric emptying which occurs with some inflammation of the small bowel.

Estudo da pericardite experimental. Por Eduardo Coelho, Artur de Oliveira, Leonel Cabral e Manuel Prates. Paper. Pp. 77, with illustrations. Lisbon, 1946.

This monograph presents the authors' concepts of the genesis of the electrocardiogram found in pericarditis. It is based on experimental studies of the authors in the dog and monkey. They found a lack of relationship between the alterations in the electrocardiogram and the morphology of the myocardium. They conclude that electrocardiographic changes in pericarditis depends on changes at the surface of the heart. This conclusion is at variance with the mass of evidence obtained by others.

Atomic Energy. By Karl K. Darrow, Ph.D. Being the Norman Wait Harris Lectures Delivered at Northwestern University. Cloth. Price, $2. Pp. 80, with 13 illustrations. John Wiley & Sons, Inc., 440 4th Ave., New York 16; Chapman & Hall, Ltd., 37-39 Essex St., Strand, London, W.C. 2, 1948.

The author of this book was invited to present the subject of atomic energy in four lectures to an audience who were not physicists. This problem has been pretty well solved, for the material is readable and interesting without being superficial. A number of tables supply concrete details as food for thought without detaining the reader unduly. For many persons it will be a welcome introduction to a difficult but important subject.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

ACCIDENTAL EXPOSURE TO LEPROSY

To the Editor:—I was testing a leper for skin anesthesia and accidentally stuck my own arm with the pin. About twenty minutes later I cauterized the site with sulfuric acid. Do you think it would be advisable to take a course of sulphetrone© (4:4'-bis [gamma-phenyl-N-propylamino diphenyl-sulfone-tetra sodium sulfonate]) or some other suitable drug as a prophylactic? If so, how much do you recommend?

R. S. Newbold, M.D., Belgian Congo.

Answer.—The inquiry does not state whether leprosy bacilli were recovered from the skin of the patient in question. The presence or absence of organisms in the skin is of paramount importance. The chance of transferring the infection from a negative case is considered to be nonexistent; if, on the other hand, organisms could be recovered from the skin the chance of transferring the infection is at least theoretically present.

From the numerous instances recorded in the medical literature in which deliberate experimental attempts of transmitting leprosy from infected to healthy persons by direct inoculation have resulted in failure to transmit the infection, it would appear that in this instance the possibility of leprosy transmission is exceedingly remote. The examiner's arm was apparently stuck only once with the questionably infected needle and the point of contact was later cauterized with sulphuric acid. In the instances of the experimental attempts at transmitting the infection, repeated inoculation were made and, of course, no attempt at destroying the inoculant was made. Yet evidence of infection in these experimental attempts (some 140 odd) recorded in the medical literature did not occur.

There are instances of accidental infection with leprosy reported. Rogers and Muir in a textbook on leprosy (Leprosy, ed. 3, Baltimore, William Wood & Company, 1946) listed several instances of accidental inoculation including that of Marchaux, who in 1922, while operating on a leprosy patient, pricked the finger of his assistant, in whom leprosy developed after several years. A case reported by Lagandaky in 1936 is also mentioned. This patient received repeated injections of blood from a patient with leprosy, and in less than two months after his first inoculation cutaneous lesions of leprosy were developed. In the face of such reports it is understandable why concern should be shown by any one who feels that accidental inoculation has taken place, although such an inoculation might be of the most superficial kind.

Since drugs of apparent chemotherapeutic activity against leprosy are available in the sulfones, it is also probable that they would be of prophylactic value against the development of the disease. So far no instance of their use prophylactically has been reported. On leprous lesions the action of the sulfones is found to be slow but certain. It is felt that these drugs are capable of preventing the formation of new lesions, allowing the old lesions to disappear much in the same manner as occurs during spontaneous recovery from the disease. The exact mechanism whereby this therapeutic activity is accomplished is not known, but there is a suggestion that if sterilization does not occur at least a reduction of leprosy bacilli in the blood stream occurs after the use of the sulfones. The latter occurrence is probably the most tenable because the action of the drugs under no circumstances is rapid, and prolonged administration of the drugs is necessary for any considerable clinical improvement.

In the present instance although the likelihood of infection is exceedingly remote it is present and cannot be ignored. The recommendation of one of the sulfones on a prophylactic basis would imply that the mechanism of their action is more or less completely understood. Furthermore, their use for such a purpose from the experience gained in the treatment of leprosy would have to be of rather prolonged duration. It therefore would appear that a more practical solution of the problem in this case would have been excision of a small area of skin at the point of inoculation followed by some form of cautery. That some organisms have reached the blood stream is a rather remote possibility and probably of no higher occurrence than is experienced by leprosy workers in general in their routine daily work and successfully combated by the body defense system. If there is an indication that the frame of mind against fear of infection can be bolstered by the use of the sulfones their use might be of benefit; there is no particular contraindication to their use as they are of fairly low toxicity and if used with discretion can cause no harm. An unequivocal scientific recommendation for the use of the sulfones prophylactically must await such basic consideration as the cultivation of the leprosy bacilli on artificial mediums followed by in vitro and in vivo studies of the effect of these drugs on the organism. Before that is done the use of sulfones prophylactically cannot be recommended except on an empiric basis.

OXYGEN SATURATION OF HEMOGLOBIN

To the Editor:—Mutch in 1940 reported the alveolar concentration of oxygen by various means of administration as follows: normal, 15 per cent; nasal catheter, 30 per cent; tent (usual), 45 per cent; tent (extreme), 60 per cent, and B. L. B. mask, 90 per cent. What are the comparable blood concentrations of oxygen in the pulmonary veins or peripheral arteries by these methods in normal conditions, cardiac embarrassment, burns, shock, atelectasis and other diseases restricting the tidal air volume of the lungs?

R. A. Davison, M.D., Hendersonville, N. C.

Answer.—Some of the basic physiology concerned in this question is to be found in "The Principles and Practice of Inhalation Therapy" by A. L. Barach (Philadelphia, J. B. Lippincott Company, 1944), and appropriate chapters in "Physiologic Basis of Medical Practice" by Charles H. Best and Norman B. Taylor (Baltimore, Williams and Wilkins Company, 1945).

Rather than speak of oxygen concentration of the blood, it is preferable to direct attention to oxygen saturation of the hemoglobin in the blood. The oxygen in the blood is presumably in equilibrium with the oxygen in the alveolar air, as is also true for carbon dioxide. However, the concentration of oxygen in the alveoli depends on the partial pressure also exerted by the carbon dioxide and the water vapor in the alveolar air and the efficiency of the lung in ventilating the terminal alveoli, as well as on the concentration of oxygen in the air breathed.

Because of the peculiar dissociation curve of a hemoglobin-oxygen mixture in the face of various carbon dioxide tensions, the oxygen saturation of hemoglobin does not vary directly with the oxygen tension in the alveolar air. Correction of the acid-base imbalance present in nearly all of the listed states is at least as important as furnishing oxygen in the inspired air.

In the last analysis, the choice of mode of oxygen administration depends on the method which will supply the most oxygen and permit optimal pulmonary ventilation while other treatment is directed toward the underlying disease.

CODEINE ADDICTION

To the Editor:—A patient suffering intense pain in arms, legs, neck and head of unknown origin or causation was started on codeine hypodermically by another doctor. She had been taking large amounts of acetylsalicylic acid but without much relief. She was taken to Chicago and found to be allergic to most of the common foods and a few drugs. Her condition is better than a year ago but she still requires several injections of codeine daily. I have been told that it is not difficult to take a patient off codeine when the need for it no longer exists. Is this true? What can I use in place of codeine to relieve her pain?

M.D., Ohio.

Answer.—After need for the drug no longer exists, relief of the rather mild physical dependence created by prolonged use of codeine is simple. Codeine has been included in the group of drugs under control of the Bureau of Narcotics mainly because addicts, or potential addicts, not satisfied with the action of this drug, change to one of the more dangerous opiates or to substances whose action resembles that of the opiates.

As with all attempts at withdrawal from a substance on which a person is in any way dependent, complete control of the patient's environment is necessary but, of course, frequently difficult or impossible. With assurance that the patient has no access to any substance not prescribed, or given, by the physician, an occasional dose of codeine for several days, reducing rapidly the size of the dose, will insure that no great discomfort will be felt by the patient. A serious possibility is that a patient is also taking some other drug, e. g., a barbiturate; if there is definite physical dependence in this group, sudden withdrawal may be followed by a grand mal seizure, so severe as to cause fracture of a femur, or serious compression fracture of one or more vertebrae.

Several things in the question need amplification. Nothing is given as to how large the "large amounts" were, or as to what the present daily dosage is. "Intense" pain is not usually relieved by codeine. Pain of the character and in the distribution described is often encountered as a part of a severe abstinence syndrome for morphine. There should, however, be other manifestations of this syndrome, e. g., yawning, goose flesh, restlessness and, in the more severe stages, vomiting and diarrhea and, finally and most serious, hyperpyrexia (105 F. and above).

Intensity of pain is difficult to measure. What might be an annoying discomfort to one person, to another would be an agonizing pain. Results of prefrontal lobotomy suggest that the interpretation of the severity and significance of a pain is in large part a function of the prefrontal lobes.

It is possible that the patient, without the knowledge of her physician, is taking some other drug with morphine-like action. If her supply became exhausted, some such complaint (real and not assumed) might lead her to demand relief.

Since the cause of the pain so far remains unknown, it is difficult to suggest a remedy. There are many analgesics that have only slight addictive risks.

There is a synergistic action between nearly all analgesics and members of the barbiturate group; a combination of small amounts of each will frequently give better results than either alone in much larger amounts. Wolfe has showed that the probable basis for this is a "chain reaction" started by a small focus of pain, and spreading widely through the muscles. Of course, barbiturates must also be given with care, especially to a patient whose "intense pain" is relieved by codeine.

The proper procedure, if it can be followed, is to place the patient in an environment where the physician can be absolutely sure that unauthorized medication is not obtainable; then follow this by a thorough study for possible causation. Without an approximation of such control of medication, the physician can never be certain that his patient is not complicating the situation by the use of too much of the same or of some other substance.

SOLVENT CONTACT DERMATITIS

To the Editor:—A macular papular diffusely erythematous rash developed first on the patient's face and neck, with burning, stinging and some itching. In two days the rash spread over his face, trunk and upper extremities, being less severe on his hands and lower extremities. The skin became indurated and slightly edematous. Considerable symptomatic relief was obtained with 50 mg. tripelennamine hydrochloride, four times daily. Considerable desquamation accompanied improvement. A history was obtained of a similar but more localized rash occurring ten months previously after he had spilled fuel oil over his abdomen. Three days prior to the generalized eruption he had started working for a highway construction company cleaning asphalt from buckets and equipment with some solvent thought to be gasoline; stinging of the face and neck was noted shortly after the first exposure to these substances. Could such a rash be due to this industrial exposure, and is it proper to call it an exfoliative dermatitis?

William C. Crothers, M.D., Salem, Ore.

Answer.—Contact with a solvent or fuel oil might well produce such an eruption in a patient who is hypersensitive to the materials. Such an eruption is more apt to be an acute contact type dermatitis rather than exfoliative dermatitis, which is characterized by generalized hyperemia, inflammatory infiltration, exfoliation, edema of soft parts, as the neck, eyelids and flexures, and a skin that is smooth, shiny and red where the scales have been removed—all accompanied by considerable chilliness.

SCHIZOPHRENIA

To the Editor:—A white man aged 41 consulted me recently because of fear of insanity. He has always been in good health. No history of insanity occurs in parents or maternal and paternal grandparents. He has a mild anxiety neurosis, fear of fainting since having a sensation of lightheadedness about ten years ago, but otherwise is normal mentally. His sister, aged 36, has recently been committed to a mental hospital because of schizophrenia. What are his chances of developing schizophrenia?

M.D., Ohio.

Answer.—At his age, with negative history in parents and grandparents, almost none.

TOUPEE PASTE

To the Editor:—Are there carcinogenic properties in spirit gums used to hold toupees to the skin?

M.D., Pennsylvania.

Answer.—The essential ingredients apparently are substances such as gum arabic, or tragacanth, which may produce dermatitis. Cancer has not been reported to be caused by these substances.

TUBERCULOUS PLEURAL EFFUSION

To the Editor:—A patient, aged 53, in a sanitarium because of mild schizophrenia experienced typical pleural pain. Roentgenograms of the chest at the outset were normal in appearance. Fever and other abnormal findings were absent. Laboratory data were negative except for a moderate increase in the sedimentation rate. After a week the pain subsided, but a gradually increasing pleural effusion occurred. Before thoracentesis was performed a spontaneous pneumothorax also occurred. Examination of the fluid initially was negative for organisms. Cultures were negative, but specific gravity and the protein content, as determined in the usual examination, indicated that a transudate was present. Examination for tumor cells was negative. Several weeks after subsequent thoracenteses the laboratory reported acid-fast organisms found by direct smear, culture and guinea pig inoculation. Both the pneumothorax and pleural effusion remain after six weeks. Is daily closed drainage with effort to remove the air indicated? Should streptomycin be injected into the pleural cavity after thoracentesis (also penicillin) as prophylactic against empyema? The apexes of both lungs still appear normal. Tuberculosis is not evident elsewhere. Roentgenograms after the pneumothorax occurred showed adhesion of the middle lobe and the lateral chest wall.

M.D., Washington.

Answer.—With pain as the first symptom, one might suspect spontaneous pneumothorax or pleuritis. In the beginning, either of these conditions may escape detection on the roentgenogram. So little air may have accumulated in the pleural space that it would not be visible to ordinary roentgenographic film inspection. Moreover, recent localized inflammation of the pleura cannot be visualized on the roentgenogram. It is assumed that the second roentgen inspection of the chest of your patient was not made until one week after the onset of symptoms. By this time enough air could have escaped through a minute rupture in the visceral pleura so as to be readily detected by roentgen ray. Visceral pleural blebs are a frequent cause of spontaneous pneumothorax in the absence of demonstrable evidence of disease in the lungs during life or even at postmortem examination. In such cases pleural fluid may accumulate in the pneumothorax cavity.

Another possibility is that a subpleural pulmonary lesion, too small to be seen by roentgenographic inspection or located in an area not clearly visualized, may have eroded or extended into the visceral pleura, resulting in inflammation of the parietal pleura with pain. If the condition were tuberculous this would be adequate to result in pleural effusion. Moreover, the subpleural lesion may have eroded through the visceral pleura so that air was readily admitted to the pleural space from the lung. Under such circumstances large numbers of tubercle bacilli may also be admitted to the pleural space.

Acid-fast bacilli are not always tubercle bacilli, even under these circumstances. However, with good laboratory technic there can be no doubt that those recovered from the fluid of this patient were tubercle bacilli, as the best known test for pathogenicity, namely, animal inoculation, was used. Failure to find tubercle bacilli when the fluid was first detected is not unusual. In fact, this often occurs even though a sizable number of specimens are examined.

If the pneumothorax is not large enough to cause pressure symptoms or extensive collapse of the lung with areas of atelectasis, removal of air is not indicated, as the creation of an excessively high negative pressure in the pleural cavity might keep the fistula open longer than if the air is allowed to slowly absorb. The relaxation of the lung resulting from the pneumothorax may permit a more ready closing of the fistula. In such a case, however, the removal of fluid as indicated to keep the pleural space as dry as possible not only will permit the lung to reexpand faster, but may also help in preventing empyema. Mixed infection empyema sometimes occurs in such cases when organisms admitted to the lung through the bronchi enter the pleural space through the fistula. Rarely is infection produced by careful aspiration of the fluid. There is no harm in introducing penicillin after each aspiration, and it may serve to destroy organisms which might otherwise result in a mixed infection empyema.

Although streptomycin has been administered in a limited number of cases of tuberculous pleurisy with effusion, it is probably better to refrain from its use in the case described. At best it has only a bacteriostatic effect. Moreover, there is strong likelihood that during the course of streptomycin therapy a preponderance of resistant tubercle bacilli would be found. Resistance to streptomycin apparently is passed on to the descendants of tubercle bacilli, and therefore if later a more serious condition should develop, such as meningitis or miliary disease, streptomycin would probably be of little avail, whereas it is usually of considerable help in suppressing such disease in persons who have not previously had a course of this drug. It is generally agreed that in tuberculous lesions anywhere in the body which usually respond well to other forms of treatment, streptomycin should not be administered.

It should be held in reserve for those conditions which do not respond well to other methods of treatment.

In all probability the right lung in the region of the middle lobe did not become adherent to the chest wall within a week after the pain appeared. It is more likely that involvement of the pleura had been present for some time. Whether the bronchopleural fistula occurred at or near the site of the pleural adhesions might be determined by thoracoscopic inspection. However, there is no point in doing this unless the fistula should remain open and surgical closure be indicated later.

Unless the fluid and air were under considerable positive pressure they probably did not cause rupture of an adhesion resulting in the fistula. It is more likely that this was due to subjacent disease extending through the pleura.

UNILATERAL MYDRIASIS

To the Editor:—**A 7 year old Negro boy noted dilatation of the right pupil on arising four days prior to examination. Systemic disease is not evident. The fundus appears normal except for a hyperemic macula area. History of head injury or headaches is absent. As far as the eye is concerned, the patient is asymptomatic. Please suggest causation and treatment.**

J. E. Calloway, M.D., Louisville, Miss.

Answer.—Unilateral mydriasis, in general, may be due to a lesion of the intraocular muscles, an irritative lesion of the sympathetic nerves or an interruption of the third nerve at the Edinger-Westphal nucleus, the nerve trunk itself or the ciliary ganglion.

Direct injury to the eye may cause dilatation of the pupil and loss of response to light and accommodation—convergence. The pupil usually remains dilated for only a few days, but occasionally may remain dilated permanently. Irritative lesions of the sympathetic nerve, known to cause unilateral pupillary dilatation, are pulmonary tuberculosis of the apex, tuberculosis of a cervical lymph node, bronchiectasis, gangrene of the lung and pneumothorax.

The third nerve nucleus or trunk may be involved in juvenile paresis, temporal lobe tumors, tumors of the pineal gland, subarachnoid or subdural hemorrhages or rupture of middle meningeal artery and following mumps, meningitis, diphtheria and anterior poliomyelitis.

Mydriasis with paralysis of accommodation is caused by atropine, homatropine, scopolamine and to a partial degree by eucatropine hydrochloride. Mydriasis without involvement of accommodation is caused by epinephrine and its derivatives and cocaine and its derivatives.

Congenital mydriasis is infrequently seen, as in hysteria, with associated amaurosis or amblyopia. Dilatation may occur as an associated reaction when strong attempts are made toward voluntary movements of the eye in any direction or attempt is made to diverge. It has been described in schizophrenia. The tonic pupil of Adie is characterized by unilateral dilatation, slow reaction to light and absent tendon reflexes.

Once it is determined whether the lesion is in the intraocular musculature, the parasympathetic or sympathetic nerves, the diagnosis is simplified. Usually a local lesion is associated with other signs of disease or injury of the eye. There is a prompt consensual pupillary reaction, accommodation may or may not be affected and the pupillary reaction to drugs is inconstant. Dilatation due to sympathetic irritation is characterized by response of the pupil to light directly and consensually, normal accommodation and normal response to physostigmine salicylate. Third nerve involvement is characterized by loss of accommodative power, frequently loss of the direct and consensual pupillary reaction and decreased or absent miosis following treatment with physostigmine salicylate. Treatment must be directed toward removal of the cause.

APOMORPHINE SOLUTIONS

To the Editor:—**Is apomorphine hydrochloride in sterile water or isotonic sodium chloride solution a stable preparation? If not, what solvent may be used for a stable hypodermic solution?**

C. C. Horton, M.D., Pendleton, S. C.

Answer.—Aqueous or alcoholic solutions of apomorphine hydrochloride are unstable, gradually acquire a green color, and lack therapeutic properties. The addition of 0.05 per cent sodium bisulfite may be useful as a preservative.

Solutions containing the methyl bromide derivative euporphin® (apomorphine methyl bromide) have been reported to be more stable than the salts of apomorphine. A clear solution containing apomorphine, ascorbic acid and mannitol has been reported (*Chem. Abstr.* **41**:1809, 1947) which does not undergo color change.

TEST FOR UROBILINOGEN

To the Editor:—**What are the reagents and the technical procedure in performing the Wallace-Diamond urobilinogen test on the urine?**

M.D., North Carolina.

Answer.—Prepare the reagent by dissolving 2 Gm. of paradimethylaminobenzaldehyde, preferably Eastman's, in 100 cc. of 20 per cent (by volume) hydrochloric acid (20 cc. conc. HCl + distilled H_2O ad 100 cc.).

Urine for test should be fresh. After standing, especially in light, urobilinogen is fairly rapidly changed to urobilin. Bile pigment, if present, should be removed by adding 1 part of 10 per cent aqueous solution of calcium chloride to 4 parts of urine and filtering or centrifuging, or by adding a small amount of calcium chloride crystals instead of the solution, followed by filtration or centrifugation.

To 10 cc. bilirubin-free undiluted urine at room temperature add 1 cc. Ehrlich's reagent and allow to stand three to five minutes. If a deep cherry red color appears proceed with diluted urines. Normal urines produce a moderately deep red color.

Prepare serial dilutions of urine, 10 cc. of each, of $\frac{1}{10}$, $\frac{1}{20}$, $\frac{1}{40}$, etc., with distilled water or tap water. Add to each tube 1 cc. of the reagent and allow color to develop for three to five minutes. Look down tube through the column of liquid against a white background, preferably by daylight. The result is expressed in terms of the highest dilution which shows a faint pink color. Most normal urines show color at one-tenth and in the afternoon, especially, some show color at one-twentieth dilution.

Watson's method may be used also and is more strictly quantitative.

PROSTATIC CANCER AT AGE SEVENTY

To the Editor:—**What is to be preferred in cancer of the prostate in a man of 70 plus? Should he be treated only with diethylstilbestrol or estynil® (ethinyl estradiol), or is orchiectomy advisable, and when? What is intracapsular orchiectomy, and does it give longer life than complete castration? Should the prostate be removed and by what method?**

J. W. Hopkins, M.D., Glendale, Calif.

Answer.—Carcinoma of the prostate gland in a patient 70 years of age is generally a slowly growing tumor, and the most conservative treatment that is effective is indicated. Estrogenic substance is a treatment of choice and administration of it should not be delayed when the diagnosis of carcinoma is established. Tolerance to the estrogens is variable and the dosage must be adjusted as indicated. Orchiectomy is reserved for patients wholly intolerant of estrogens and for those patients in whom the effectiveness of the estrogens has been dissipated. Intracapsular orchiectomy does not have advantage over castration. Although endocrine secretion has not been definitely ascribed to the epididymis, excision of the testicle and epididymis will preclude any possibility of androgen stimulation of the carcinoma by these organs. Androgenic substances of adrenal origin must be neutralized with estrogens. In a man 70 years of age with carcinoma of the prostate, transurethral resection of obstructing prostatic tissue is the only type of prostatic surgery indicated. It is only the small, early nodule of prostatic cancer that is amenable to radical perineal prostatectomy and then only in a younger age group.

INDUSTRIAL CARBON TETRACHLORIDE HAZARD

To the Editor:—**A young veteran who has gone into the dry cleaning business becomes violently ill every time he inhales the fumes of carbon tetrachloride. He even becomes nauseated at the thought of it. Is there any type of mask that will filter out these fumes?**

M.D., New Jersey.

Answer.—Dangers from carbon tetrachloride are real and, provided the exposure is sufficient, are more substantial than nausea and vomiting. At and somewhat below 50 parts per million the damage is largely on a nonorganic basis. Above that level, and particularly above 100 parts per million, serious organic injury may arise, notably to the liver and kidneys. In the avoidance of possible harm in the dry cleaning industry, reliance for continuous purposes on protective breathing apparatus, including positive pressure respirators, is impractical. The use of such appliances should be limited to special operations such as the cleaning out of sump tanks. Equipment for carbon tetrachloride dry cleaning is readily available that prevents frequent escape of toxic vapors. In fact, closed systems are essential both to the conservation of health and to avoid the uneconomic wastage of the expensive carbon tetrachloride. If the equipment ostensibly of the closed system type still emits some vapors that may not be avoided, local exhaust devices should be installed to remove such vapors.

In the present instance the practical need is to have the state's Bureau of Industrial Hygiene carry out suitable determinations of the carbon tetrachloride in the atmosphere and to determine the source of such intoxicant. Remedial steps should seek to maintain atmospheric levels at or below 25 parts per million and *certainly not higher than 50 parts per million. In* the possibility of high individual susceptibility, this present dry cleaner may find it expedient to substitute for the chlorinated detergents such as carbon tetrachloride, one of the recognized petroleum derivatives. More dry cleaning is carried out with naphtha types of dry cleaners than with carbon tetrachloride. However, naphtha dry cleaners are not entirely without their own hazards and in addition are subject to fires. While the wearing of respirators in this operation is not encouraged, suitable information may be obtained from many manufacturers, including the Mine Safety Appliances Company, Pittsburgh.

ALCOHOL INTOLERANCE

To the Editor:—A 49 year old man weighing 190 pounds (86.2 Kg.), in good health, states that for the last year he can no longer take alcohol without becoming dizzy and perspiring. He also becomes more talkative and inebriated. Up to a year ago he could take as much as 26 ounces of alcohol over a period of a few hours without feeling intoxicated. Then after a meal he was again normal. Now he dreads the effect of 2 ounces of alcohol and the effect lasts for much longer periods of time. The kind of beverage he takes does not change results. He has been taking alcohol in large amounts for the last twenty-five years, on some weekends or holidays. Is there a pathologic explanation for my patient's becoming so intolerant and in so short a time? What do you suggest to improve his tolerance?

La Salle Mondor, M.D., Grand'Mere, Quebec, Canada.

ANSWER.—The original high tolerance for alcohol may actually have been a symptom of brain damage. The Report of the Advisory Committee of the Central Control Board (Liquor Traffic), appearing in "A Review of The Effects of Alcohol on Man, London, Victor Gollancz, Ltd., 1931 (p. 64) states: "From the point of view of general health the acquisition of tolerance really implies the removal of a protective mechanism—it allows the drinker to use the drug in doses which he could not have taken if his brain cells had retained their normal power of reacting to it." "These facts suggest that the acquirement of tolerance or, as Hansen terms it, of 'Functional habituation' by the nerve cells is a pathologic change and represents the first stage of chronic alcoholic poisoning."

The sudden loss of tolerance with the acquisition of extreme susceptibility occurs in persons who are on the verge of one of the diseases of alcoholism such as the polyneurotic Korsacow pattern or delirium tremens. The patient is indeed fortunate to have acquired the dislike for alcohol, and he certainly should not be encouraged to increase his tolerance. Lucky is the man for whom the bell tinkles before it tolls.

CHRONIC MULTIPLE SCLEROSIS

To the Editor:—A patient with chronic multiple sclerosis has been taking liver and B-complex injections for years. The disease has been progressing slowly but steadily during this period. I understand that there has occurred an "associated low grade anemia" but not of the pernicious anemia type. 1. Is there value in the continued use of liver and B-complex injections? 2. Will iron or molybdenized iron do as much for the patient's blood picture? 3. Do any of the following have any effect on ameliorating the disease: (a) tetraethyl ammonium chloride, (b) ephynal acetate® (d,l-alpha tocopheral acetate), (c) vitamin B-12 (reported in connection with the neurologic phase of pernicious anemia), (d) a combination of liver, folic acid and stomach extract or (e) injections of fibrolysin? 4. Are there any other agents which will aid in either the disease or the comfort of the patient?

Lester J. Candela, M.D., New York.

ANSWER.—Liver and B-complex injections in patients with multiple sclerosis have been widely used in the past, without resulting in any specific type of improvement in most patients. The feeling, however, that patients are "better" under this form of treatment is recognized by many. Relapses are frequently less severe than might be expected and some "resistance" develops, often vague but nevertheless discernible by competent observers. To many physicians, patients with multiple sclerosis show less severe symptoms than those seen twenty years ago before the use of liver or vitamin therapy was instituted. Such a point of view is not consistent with the views of some, but many neurologists are impressed with the value of vitamins, although less so with the importance of liver.

In patients with anemia, there is always the possibility that the symptoms are due to combined system disease and not to multiple sclerosis. The clinical signs are frequently similar enough to be confusing, but a first-zone colloidal gold reaction in the cerebrospinal fluid should never be found in combined system disease. Iron and liver, vitamin B_{12}, folic acid or stomach extract are indicated in the anemias with neurologic complications, but their value, if any, in multiple sclerosis awaits confirmation. Rest periods, appropriate exercises, warm climate, adequate diet, freedom from infection, a full vitamin intake, fully absorbed, and psychotherapy are the best forms of treatment for patients with multiple sclerosis at the present time.

LICHEN PLANUS

To the Editor:—Please furnish information relative to recent advancements in therapy of lichen planus.

M.D., Wisconsin.

ANSWER.—Therapy of lichen planus has not been greatly advanced. Recently, the use of sodium bismuth triglycollamate has been advocated, one tablet being given four times a day by mouth until relief is obtained or for a period of several months. According to the pharmaceutical house putting out this tablet under the trade name bistrimate,® one tablet contains 410 mg. of the drug, equivalent to 75 mg. of bismuth. Bismuth has been given in the past in the form of intramuscular injections of various bismuth salts and also in the form of bismuth arsphenamine sulfonate. Mercury in the form of protiodide, grain 1/6 (about 0.01 Gm.) three times daily by mouth, has also been recommended. Better results from the use of mercury followed the intramuscular injection of 1 per cent mercury bichloride in isotonic sodium chloride solution, the dosage varying from ⅛ to ¼ grain (about 0.008 to 0.016 Gm.) every second day. Twelve to twenty injections suffice when the treatment is effective. There are a great many other forms of therapy for lichen planus, including filtered roentgen irradiation to the paravertebral regions. No one type of treatment is successful, and in many cases lichen planus proves resistant to multiple types of treatment.

STREPTOTHRIX CASTS IN TEAR DUCT

To the Editor:—A young woman, aged 30, has had blockage of the right tear duct for several years. This condition gradually gets worse and then improves with the expulsion of a cast from the right tear duct. The cast is composed of Streptothrix organism. As gross concretion in the canaliculus is absent, surgery has not been performed. Have you suggestions for preventing the formation of these casts?

M.D., California.

ANSWER.—Streptothrix organisms usually form concretions in the lower canaliculus causing pronounced dilatation of this structure. Prompt cure is ordinarily obtained by expressing the concretions on two or three occasions. Lugol's solution (strong iodine solution U. S. P.) can be instilled into the punctum. Obstruction of the nasolacrimal duct by this organism is unusual and as a rule requires extirpation of the lacrimal sac or dacryocystorhinostomy.

OTITIS EXTERNA

To the Editor:—Please give a résumé of causation, diagnosis and treatment of otitis externa. Is swimming sometimes forbidden as a preventive measure? Does the wearing of ear plugs help?

M.D., New York.

ANSWER.—Otitis externa is frequently due to a fungus. Aspergillus is often an offender. Bacillus pyocyaneus or Staphylococcus aureus may be responsible.

For the Aspergillus, cleanliness and use of cresatin or methylosainline chloride are recommended. For the B. pyocyaneus, dibromosalicylaldelyde in a 1 per cent solution is effective. For the Staph. aureus, 5 per cent sodium sulfathiazole is the treatment of choice. Moisture in the ear usually precedes the infection; most of these cases date from swimming in the summer. Lamb's wool smeared with petrolatum to make a tight ear plug is useful for protection.

TEST FOR PHEOCHROMOCYTOMA

To the Editor:—It has recently come to my attention that tetraethyl ammonium chloride may be of some value in the diagnosis of pheochromocytomas of the adrenal gland. This drug normally produces a fall in blood pressure when administered to a person having normal blood pressure or one having hypertension from causes other than adrenal tumors; whereas, when it is administered to a person having a pheochromocytoma, an immediate rise in pressure with accompanying symptoms will occur. Can this drug be used for that purpose? What is the suggested dosage?

L. C. Bailes, M.D., Anderson, S. C.

ANSWER.—Tetraethylammonium chloride has been utilized in making diagnosis of pheochromocytoma. The phenomena described in the question occur when pheochromocytoma is present. The total dosage for this diagnostic purpose is 300 mg.

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PROTEIN COMES INTO ITS OWN

The Frank Billings Lecture

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The science of nutrition as I have watched it develop through the years has presented a constantly changing picture. According to the trend of research and the appeal to the imagination made by the discoveries of the day, first one coloration and then another has dominated the picture. This development can roughly be divided into five periods, all culminating today in a period of greater appreciation of protein.

THE ENERGY ERA

First, there was the energy era, the day of the great pioneer students of metabolism, of Liebig and Voit, and then of Rubner and Atwater, Friedrich Müller and Graham Lusk. The brilliant discoveries of that period had their beginnings in Paris with Lavoisier in the investigations which led him to the conclusion that all life is a chemical process. The scientists who followed Lavoisier, notably those of the Munich school, were primarily interested in the chemical changes that take place in the body under the influence of living cells. Almost all of what we regard today as fundamental in metabolism was brought to light by these men. It was this generation of workers who discovered that the law of the conservation of energy is applicable to nutrition, that the nitrogen of the urine can be taken as a measure of protein destruction, that nitrogen equilibrium can be maintained by an appropriate diet, that muscle work does not appreciably increase protein metabolism, that foodstuffs may under given conditions replace each other in accordance with their caloric value (the isodynamic law) and that the heat value of basal metabolism is proportional to surface area. The standard caloric values of carbohydrate, protein and fat as determined at that time by Rubner and subsequently modified by Atwater are used today in all nutritional reckonings. Animal calorimetry had its beginning at that time; methods for measuring respiratory metabolism were perfected, and the Atwater-Rosa-Benedict calorimeter, which has served as the model for many subsequent forms of apparatus, was developed. The intricacies of metabolic disorders were studied and such diseases as gout and diabetes obtained a better understanding. During this era prime consideration was given to energy exchange, and attention to calories came first. In a later period, calories came perilously near being forgotten.

THE PERIOD OF ADEQUACY IN DIET

A little later came an era that may appropriately be called the period of adequacy in diet. Elvehjem recently remarked on the contrast between the liberal space given the regulation of the diet in the "corpus" of Hippocrates and the neglect of this subject in favor of drug therapy in the succeeding centuries. This neglect has continued almost to our time. Notwithstanding the wealth of information concerning the harmful effects of starvation uncovered by the investigators of the nineteenth century, physicians of the early years of this century continued to give little thought to the nutritive requirements of the sick person. They told the patient what he must not eat, not what he must eat. Patients with typhoid, for example, were given each day only a few ounces of milk and a little thin broth, and some physicians did not believe in giving milk! The plight of these patients, as I can testify, was grievous in the extreme. The distastrous effects of such a diet were not appreciated until the first decade of this century, when the error of dietary neglect became apparent notably in respect to two diseases, typhoid and peptic ulcer. I recall hearing Friedrich Müller in 1908 tell his students of the enormous tissue waste produced by the infection and resulting fever in typhoid and state that much of this waste could be prevented if the patient was given more food. Simultaneously in this country, Shaffer and Coleman[1] reported their studies of metabolism in this disease and advised a more liberal diet. A few months later, Coleman[2] again proposed a radical change in the feeding of the typhoid patient. The prevailing fear that an increase in the amount of food would both injure the intestinal ulcers and bring the fever to a higher level continued among many physicians, however, until it was effectively disposed of a few years later by the studies of Coleman and DuBois.[3] Thereafter, a much more liberal diet was generally used in the treatment of all febrile illnesses. In typhoid the results were especially gratifying. The so-called typhoid toxemia was eliminated, the frequency of complications lessened, the period of illness shortened, much of the resulting disability relieved and the mortality greatly reduced. The difference was graphic. It marked a new epoch in the dietary treatment of disease.

A similar improvement, though not so striking, was accomplished early in this era when Lenhartz[4] discarded the old von Leube starvation diet, then used in the treatment of patients with peptic ulcer, and gave

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[1] Shaffer, P. A., and Coleman, W.: Protein Metabolism in Typhoid Fever, Arch. Int. Med. **4:** 538 (Dec.) 1909.

[2] Coleman, W.: Diet in Typhoid Fever, J. A. M. A. **53:** 1145 (Oct. 9) 1909.

[3] Coleman, W., and DuBois, E. F.: Clinical Calorimetry: VII. Calorimetric Observations on the Metabolism of Typhoid Patients With and Without Food, Arch. Int. Med. **15:** 887 (May) 1915.

[4] Lenhartz, cited by Rütimeyer, L.: Magenblutungen, in Kraus, F., and Brugsch, T.: Spezielle Pathologie und Therapie, Berlin, Urban & Schwarzenberg, 1914, vol. 5, p. 1168.

these patients more food and when, shortly thereafter, Sippy[5] in this country devised his well known regimen. True, the Sippy diet still did not provide enough food as we see it today, but it provided a great deal more than the patient had been given previously and its adoption recorded a distinct advance in the treatment of peptic ulcer. From such lessons physicians learned that hardly anything can be cured by starvation. They have come to provide a more liberal diet in the treatment of many diseases, and, as a result, they often see a shorter illness and less debility.

THE ERA OF ECONOMY IN NUTRITION

The third era brought protein into disrepute, and it is just now recovering its good name. This was the era of economy in nutrition. It was the day of "intestinal autointoxication" when many physicians were prone to ascribe almost every ill to which human flesh is heir to protein decomposition products absorbed from the intestinal tract. This idea led the physiologist Chittenden[6] to study on himself the influence of a low protein diet. Subsisting on a diet that provided only about 40 Gm. of protein daily, less than half of the then accepted standard, Chittenden maintained better health than he had enjoyed before. The sick headaches, bilious attacks and rheumatic pains all disappeared, and he experienced a greater degree of vigor. He was greatly encouraged. He continued his studies on others, professional colleagues, student athletes and soldiers, and all his subjects fared well during their period of protein restriction, which was about nine months. A little later the Danish physiologist Hindhede[7] also became an ardent advocate of the low protein diet and, like Chittenden, cited personal experiences. He reported that he even felt weak after eating much meat. Benedict[8] was at first critical, but later, during the food shortages of the first World War, he conducted experiments on a group of students which led him to revise his former views; he concluded that economy in nutrition promotes physical well-being. Although these beliefs in the beneficial effects of parsimony in nutrition were not accepted by scientists generally, many adherents were found in the medical profession and in the general public.

Apparently, there were two faults in these human experiments which tended to make the conclusions fallacious. First, no control groups were used. To those who are familiar with the reports of attempts made during the recent World War to improve the vigor of workers in industry by giving them vitamin pills, it is evident that, if conclusions are to be drawn from the testimony of the subjects themselves, control groups are necessary. Second, the time element was entirely too short. Lusk saw the difficulty clearly when he wrote that, while these experiments proved that the allowance of protein may safely be reduced during many months to half or less of what habit or appetite suggests without impairment of health or strength, it remains to be seen whether this quantity of protein in the ration, which is not greater than the body would metabolize in starvation, is advisable as a program for the whole of one's adult life.

Animal experiments appeared to provide the answer, as may be seen from the studies of McCollum and Simmonds,[9] who called attention to the relatively short period, nine months, of the reported human experiments, which is approximately 1 per cent of man's span of life. They cited experiments on animals indicating that substandard diets will, as a rule, produce no evidence of deterioration in the physical condition of the subject until 5 per cent of normal life expectancy has been covered; after that the ill effects of the restricted diet become apparent. McCollum and Simmonds observed that diets which are just good enough to permit a young animal to develop in an apparently normal manner will, when adhered to sufficiently long, cause instability of the nervous system and early aging. It was stated further that any deviation from the quality of the protein moiety of the diet, even in slight degrees from the optimum, exerts a profound influence on the functioning of the nervous system and the life history of the animal. What would have been the life history of Chittenden's subjects if the low protein diet had been observed ten years rather than nine months?

Physicians were often influenced during this low protein era by the reports of experiments on animals that were interpreted to indicate that a high protein diet was damaging to the kidneys and arteries. It is pertinent to state first that much of the evidence cited cannot be ascribed solely to the protein quota of the diet because the rations used were defective in other respects. Second, there was little evidence of true nephritis, and the animals brought to maturity on these diets remained apparently healthy and robust, showed normal fertility and produced long-lived healthy young, thus measuring up to the best nutritive criteria. Third, the intake of protein in such experiments was in most instances enormous, much greater relatively than civilized man ever takes. The results of these experiments apparently are not applicable to man.

There is, however, no lack of evidence from observations on man, as may be seen from the testimony of Stefánsson.[10] In his life in the Arctic he became enthusiastic over the virtues of an exclusive meat diet. His physician Lieb,[11] after a careful study of the explorer, wrote that during Stefánsson's eleven and one-half years in the Arctic Circle for long periods he subsisted solely on meat and that while on this diet he experienced the highest degree of physical and mental well-being. Of like tenor is the testimony of Thomas,[12] who as a member of the McMillan Arctic Expedition of 1926 made a cardiovascular and renal survey of the Eskimos of northern Labrador and Greenland. He reported that these people, living on an exclusively carnivorous diet, showed no unusual prevalence of vascular and renal disease. Similar observations were made by Tolstoi[13] and by McClellan and

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[5] Sippy, B. W.: Gastric and Duodenal Ulcer: Medical Cure by an Efficient Removal of Gastric Juice Corrosion, J. A. M. A. **64:** 1625 (May 15) 1915.

[6] Chittenden, R. H.: Physiological Economy in Nutrition, with Special Reference to the Mineral Requirement of the Healthy Man: An Experimental Study, New York, F. A. Stokes Co., 1904; The Nutrition of Man, ibid., 1907.

[7] Hindhede, M.: Untersuchungen über den Einfluss einiger Nahrungsmittel auf die Löslichkeit der Harnsäure, Skandinav. Arch. f. Physiol. **27:** 87, 1912.

[8] Benedict, F. G.: The Nutritive Requirements of the Body, Am. J. Physiol. **16:** 409, 1906; Physiological Effects of Prolonged Protein Reduction in the Diet of Twenty-Five Men, Tr. Am. Philos. Soc. **57:** 9, 1918.

[9] McCollum, E. V., and Simmonds, N.: The Newer Knowledge of Nutrition: The Use of Food for the Preservation of Vitality and Health, ed. 3, New York, The Macmillan Company, 1925, vol. 5.

[10] Stefánsson, V.: Observations on Three Cases of Scurvy, J. A. M. A. **71:** 1715 (Nov. 23) 1918.

[11] Lieb, C. W.: Effects of An Exclusive, Long-Continued Meat Diet Based on the History, Experiences and Clinical Survey of Vilhjalmur Stefánsson, Artic Explorer, J. A. M. A. **87:** 25 (July 3) 1926.

[12] Thomas, W. A.: Health of a Carnivorous Race: A Study of the Eskimo, J: A. M. A. **88:** 1559 (May 14) 1927.

[13] Tolstoi, E.: Effect of Exclusive Meat Diet on Chemical Constituents of Blood, J. Biol. Chem. **83:** 753, 1929.

DuBois[14] on 2 healthy white men who lived for a year on an exclusive meat diet. These investigators reported at the end of a year that:

> . . . in these trained subjects, the clinical observations and laboratory studies gave no evidence that any ill effects had occurred from the prolonged use of the exclusive meat diet.

This seemed to dispose of the fear that a diet liberal in protein is fraught with danger to the kidneys and arteries.

The other fear entertained by many physicians, that of "intestinal autointoxication," was disposed of by Alvarez[15] in his critical review. While this physician reached the Scotch verdict of "not proved," the testimony that has accumulated since his summary of evidence justifies the verdict of "not guilty." This hastened the end of the era of protein economy.

THE VITAMIN ERA

The fourth era, the most colorful of all, was introduced when it was found that an animal cannot live on purified diets alone. This era was foreshadowed many years earlier by Eijkman's observation[16] that something in the bran layer of the grain will protect fowls against the polyneuritis they show when fed a diet of milled rice. It was again forecast in 1911 when Funk[17] recognized the existence of deficiency diseases as we understand them today. It was the latter investigator who coined the word vitamin ("vitamine").

The present widespread interest in vitamins apparently began in 1913 when McCollum and Davis[18] observed that young animals restricted to a diet of purified casein, starch and lard, with an appropriate salt mixture, would not grow unless butter fat or egg yolk were added to the ration. About the same time Osborne and Mendel,[19] pursuing their experiments with similar diets, reported that not only was growth retarded in the young, but a characteristic disease of the eye developed in the older animals. These epoch-marking studies pointed to the existence of an important principle which is essential to growth, a fat-soluble factor, for which McCollum suggested the name vitamin A. Then Funk's "beriberi vitamine" was given the name water-soluble vitamin B and was subsequently split into its several components. Holst, Chick, Mendel and others demonstrated the existence of still another water-soluble vitamin, which was subsequently isolated from lemon juice by Waugh and King[20] and became known as vitamin C. In 1922, through the work of McCollum and his associates,[21] vitamin D came into recognition, and the discovery of still other vitamins followed. These substances were produced in pure form and their functions defined with a fair degree of accuracy. Many intricacies of metabolism were unravelled, and the vitamin era came into full development.

The minerals have never fired the imagination of the public, or indeed of the profession, as have the vitamins, but during this period nutritionists have continued to emphasize the need for an adequate supply of minerals, notably of calcium and iron. More recently, the part played in the human economy by certain "trace elements" is being studied and encouraging results can dimly be envisaged.

Accompanying this development of the vitamin era was a reawakening of interest in deficiency diseases. This interest had its beginnings two centuries earlier when the English surgeon Lind demonstrated that lemon juice or orange juice would cure scurvy, the scourge of the sea. The importance of these disorders was shown again in 1880 when Takaki almost eliminated beriberi from the Japanese navy with a more liberal ration, and still again in the first decade of this century when Fraser and Stanton[22] in Java and Chamberlain and Vedder[23] and others in the Philippine Islands were able to prevent beriberi by the substitution of whole rice for the unpolished grain. Present day interest in deficiency diseases, however, began when Searcy[24] *in 1907 identified the strange* disease then epidemic in the South as pellagra; when a few years later Goldberger[25] predicated his pellagra-preventive factor, and when in 1937 Elvehjem and his associates[26] found that black tongue in dogs, the analogue of pellagra in man, can be cured with nicotinic acid. This last discovery gave great impetus to the study of deficiency diseases, and, with brilliant results, opened up an entirely new area of nutritional investigation. The field has been assiduously cultivated. The soil was rich and the yield has been excellent.

In the treatment of these disorders results have been graphic. The public caught the enthusiasm, and now every one knows about vitamins and wants them. They are bought over the counter at drug stores indiscriminately and in enormous amounts, with benefit to many and without benefit to others. As this enthusiasm levels out, however, certain conservative tendencies may be seen. First is the recognition by nutritionists that if a person is well nourished and his vitamin equipment adequate then no nutritional benefit will accrue from the further taking of these substances. Evidence to this effect can be found in a number of publications dealing with the nutrition and health of workers in industry, notably in a recent article published by the Council on Foods and Nutrition and the Council on Industrial Health of the American Medical Association.[27]

A second conservative tendency is seen in the recognition that man should, as a rule, take his vitamins in the form of natural foods. Important as vitamins are—vitally so in the treatment of deficiency states—physicians are now coming to the realization that for the simple maintenance of robust health one should secure these substances, not from the pharmacist, but from the grocer and the dairyman. Helpful guidance to this end is being provided by many investigators in their extensive contributions to the knowledge of food composition, notably by Elvehjem and his co-workers. The

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14. McClellan, W. S., and DuBois, E. F.: Clinical Calorimetry: Prolonged Meat Diets with a Study of Kidney Function and Ketosis, J. Biol. Chem. **87**: 651, 1930.

15. Alvarez, W. C.: Intestinal Autointoxication, Physiol. Rev. **4**: 352, 1924.

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19. Osborne, T. B., and Mendel, L. B.: Relation of Growth to Chemical Constituents of Diet, J. Biol. Chem. **15**: 316, 1913.

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21. McCollum, E. V.; Simmonds, N., and Becker, J. E.: Studies on Experimental Demonstration of Existence of a Vitamin Which Promotes Calcium Deposition, Bull. Johns Hopkins Hosp. **33**: 229, 1922.

22. Fraser, H., and Stanton, A. T.: The Etiology of Beri-Beri, Tr. Soc. Trop. Med. & Hyg. **3**, 1910; Lancet **2**: 1755, 1910.

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26. Elvehjem, C. A., and others: Relation of Nicotinic Acid and Nicotinic Acid Amide to Canine Blacktongue, J. Am. Chem. Soc. **59**: 1767, 1937.

27. Indiscriminate Administration of Vitamins to Industrial Workers, Report of the Council on Foods and Nutrition and the Council on Industrial Health, J. A. M. A. **118**: 618 (Feb. 21) 1942.

vitamin era is being rounded out with a wholesome appreciation of the importance of simple, good food. A few nutritionists are even calling themselves "ham and egg nutritionists."

THE PROTEIN ERA

The picture changes, and today we are in the protein era. As Lewis[28] observed in his excellent review, the regard in which this foodstuff is held today is in keeping with the origin of the name, from the Greek "first" (πρωτεῖος). This greater appreciation of the value of protein received its first impetus about ten years ago when Rose[29] told of feeding experiments on rats that revealed the indispensability of ten of the known twenty-two amino acids. He demonstrated that it is possible to maintain life in the rat when a suitable mixture of amino acids is the only source of nitrogen. Shortly thereafter, Shohl and Blackfan[30] accomplished the same in infants. Later, the indispensability of certain of these bodies to man, as well as to the rat, was shown by Albanese and his associates,[31] who observed that when lysine and tryptophane were withdrawn from the human diet a negative nitrogen balance resulted, which condition could be corrected only by restoration of the missing substances. That amino acid deficiency has specific effects became evident in the discovery that the removal of arginine from the diet causes a notable reduction in spermatozoa in the seminal plasma and that the content of spermatozoa becomes normal again when this amino acid is restored to the diet. Such specificity is now recognized, and in the opinion of nutritionists amino acid deficiency will make itself felt even more promptly than vitamin deprivation. Differences among species no doubt exist, but the available evidence indicates that, qualitatively, the requirements of man and the white rat for amino acids are similar and that the table of dispensable and indispensable amino acids constructed by Rose from his experiments on animals can be applied without too many exceptions to man.

This availability of amino acid mixtures as a food has widened the nutritionist's horizon and has stimulated manifold animal experiments and clinical trials. There is still a question, however, as to whether a mixture of pure amino acids can completely and for all purposes replace the protein of the diet, for evidence has been presented suggesting the need under certain conditions for accessory factors which are themselves derived from the protein molecule. Elvehjem[32] expressed the opinion that the answer to this question depends largely on the age of the animal. Opportunities for the use of amino acids as a substitute for protein appear almost unlimited but, as this author stated:

> . . . In the light of the work on amino acid imbalance it is apparent that each amino acid must be supplied in optimum concentration before the need for accessory . . . compounds can definitely be settled.

There is still much to be learned regarding the proper concentrations of the individual amino acids to be used in such mixtures. It is stated, therefore, by the Council on Foods and Nutrition of the American Medical Association that amino acid mixtures and protein hydrolysates containing such mixtures should be reserved for use in those cases in which parenteral feeding is necessary. If the stomach is retentive, whole protein, such as is provided by milk, meat or eggs, should be given.

The part played by protein in the metabolism of the cell has been greatly clarified in recent years and some of our older concepts must be radically revised. The present opinion is that the proteins of the body cell are not the fixed parts of a permanent structure, like the steel framework of a building, but are labile substances in a constant state of change. The first evidence of this was seen in the experiments with isotopic nitrogen of Schoenheimer and Rittenberg,[33] who reported that the protein equipment of all living cells is subject to a rapid and continuous regeneration and that in spite of this constant chemical interchange the composition of the tissues remains surprisingly the same. A few years later, Whipple and Madden[34] also demonstrated that proteins are not held in the manner that carbohydrate and fat are stored, but exist rather in a highly mobile state in which their fractions are in constant exchange. The latter workers showed that the body maintains in the plasma and in the cells a large pool of circulating proteins which are in dynamic equilibrium, and that the contributions to this pool may concern any body cell needing protein or capable of storing surplus protein.

> . . . The circulating plasma protein is the medium of exchange and the body is solvent just so long as there [are] adequate protein supplies for any emergency. When the body becomes insolvent, there may be foreclosure due to disease, infection, or injury.

Physicians at the bedside have often witnessed such foreclosure.

Still further interest in protein has been stimulated by a host of recent clinical observations. Prominent among these reports is the testimony that has come from many sources telling of the pressing need in respect to protein of the pregnant woman and the nursing mother, as seen especially in report of Ebbs, Tisdall and Scott.[35] These authors told of remarkable benefits to both mother and child from a few simple additions to the diet. Bethell and his associates[36] saw a positive correlation between macrocytic anemia and an inadequate intake of protein, and Leverton and McMillan[37] wrote to the effect that a generous serving of meat given daily to pregnant women, in addition to their self-chosen diets, is effective in increasing hemoglobin and red blood cell concentration, avoiding edema and promoting lactation. Williams[38] concluded in his summary of evidence that:

> . . . It seems reasonably sure that pregnant women with *liberal intakes of protein seldom develop the specific toxemia* of pregnancy. . . .

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38. Williams, P. F.: Importance of Adequate Protein Nutrition in Pregnancy, in Protein Nutrition in Health and Disease, Chicago, American Medical Association, 1945, p. 15.

No longer does the obstetrician tell his patient that to avoid eclampsia and the other perils of pregnancy she must restrict the protein of her diet; now he tells her that she had best eat an abundance of good protein.

There is evidence, too, that both the welfare and the proper development of the offspring depend in no small degree on the adequacy of the expectant mother's diet. Burke and her associates[39] concluded from their statistical studies in the department of child hygiene of the Harvard School of Public Health that there is a significant relationship between the diet of the mother during pregnancy and the condition of her infant at birth. From the same school came a report by Stuart[40] who, by means of roentgenograms, showed that proper osseous development at birth depends to a large degree on the suitability of the mother's diet and that protein is a factor in determining the adequacy of this diet.

Significant, too, are the reports which tell of the part played by protein in resistance to infection. Cannon[41] wrote of the dependence of phagocyte formation on plasma protein levels and cited the observations of Cottingham and Mills indicating that in rats a direct relationship exists between the amount of protein consumed and the efficiency of phagocytic activity. More important still is the part played by protein in antibody formation. Cannon pointed out that the antibody globulins of the blood are simply normal serum globulins which have been specifically altered and that adequate production of these is dependent on a sufficient intake of amino acids. He assumed, therefore, with good reason that antibody production is dependent on protein intake. This has been demonstrated experimentally by Cannon and his associates,[42] who observed that animals subjected to prolonged protein undernutrition exhibit a pronounced loss of the capacity to fabricate antibodies and to resist infection and that this loss can be quickly made good by addition to the ration of liberal amounts of good protein. Accumulating evidence indicates that protein plays a fundamental role in the maintenance of both natural and acquired resistance.

PROTEIN IN SURGICAL AND MEDICAL TREATMENT

One of the most interesting developments in the evolution of the protein era has been the awakening of surgical interest. In their article, Lund and Levenson[43] told of the large, sometimes enormous, nitrogen losses that have been reported in acute trauma and after surgical operations, and of the generally harmful effects of protein deficiency in surgical patients. Whipple[44] and others described the prolonged lag period in the healing of wounds and of the increased danger of wound rupture when protein nutrition is poor. Proof of this is seen in the animal experiments of Kobak and his co-workers,[45] who observed that the tensile strength of the abdominal wounds of protein-deficient rats was only one-third that of the controls. Elman[46] wrote of the severe shock that develops from surprisingly small losses of blood when the plasma proteins are already low. According to the studies of Mulholland and his associates,[47] even bedsores are more frequent when the plasma protein content is low, and the hypothesis is offered that these sores represent pressure necrosis in tissues which have been devitalized by protein deficiency. Surgical opinion today is in apparent agreement with Co Tui[48] when, from his studies of surgical repair, he concluded:

> Proteins are essential to wound healing, to the maintenance of tissue integrity, and from present indications, to expeditious convalescence. Protein deficiency endangers all three.

Medical opinion likewise has come to a wholesome appreciation of the need for liberal amounts of protein in the diet of the sick person. This trend apparently had its beginnings about fifteen years ago in the radical change which took place in the feeding of patients with Bright's disease. Aldrich and Boyle,[49] after observing 300 children with nephritis, impressed by the grievously ill state of most of them, discarded all preconceived ideas of diet and ordered meat or eggs three times daily. After two years' experience with this innovation, they reported that the majority of their patients showed definite clinical improvement and that the death rate was decidedly lower. At about the same time, McCann[50] also reported significant improvement in a group of nephritic patients after the allowance of protein was materially increased, in some instances doubled. Like reports came from other sources, and now patients with nephritis are fed with much greater consideration for their nutritive needs.

Less startling, but perhaps equally effective, was the introduction of more liberal amounts of protein in the diets of patients with peptic ulcer. Recently, Co Tui[48] reported early healing, with unusually prompt relief from pain and rapid gain in strength, in 29 patients with ulcers whose nitrogen intake, largely in the form of protein hydrolysates, was about three times that commonly allowed. Other physicians gave ground meat a prominent place in the diet for patients with ulcers and also reported encouraging results. Improvement follows in many other forms of illness when the physician induces his patient to eat more meat. This is particularly true of so-called neurasthenia. The treatment of syndromes of this character with an abundant diet, in which is included liberal amounts of protein, is often more effective than psychotherapy. This is equally true of the neurasthenic syndrome that accompanies many deficiency states. Pellagra as one ordinarily encounters it can seldom be cured completely by the administration of nicotinic acid and the other vitamins of the B complex alone. The patient needs good protein, and he rapidly regains his equi-

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50. McCann, W. S.: The Many Sided Question of Protein in Nephritis, Ann. Int. Med. **5:** 579, 1931.

librium when he gets it. A more obvious illustration of the need for protein is seen in the nutritional edema described in this country by Youmans and his associates[51] and encountered throughout the world wherever food shortages prevail. Examples could be multiplied.

The most dramatic about-face, however, which has been accomplished in the recent history of nutrition has been in the feeding of patients with diseases of the liver. It was not many years ago that protein foods were regarded as especially damaging to the sick liver. Large quantities of carbohydrate were given to protect this organ and to promote repair. The fallacy of this treatment was pointed out less than a decade ago by Mann,[52] who from his experiments involving extirpation of the liver concluded that the organ is best prepared to meet stress when its stores of both protein and carbohydrate are ample. Similar conclusions were drawn by others, notably Messinger and Hawkins,[53] who demonstrated that protein is most effective in protecting dogs against injury to the liver from arsphenamine, and by Ravdin and his associates,[54] who saw best protection for the liver against the stress of operation when at least 20 per cent of the calories of the diet were derived from protein. Clinical application was made of this by Patek and Post,[55] who accomplished results definitely beyond expectation in their patients with cirrhosis of the liver by giving them diets of 2,900 to 3,000 calories in which was included 116 to 135 Gm. of protein. More recently, Morrison[56] reported like results in cirrhosis with a diet that provided 200 to 300 Gm. of protein daily. The regimen devised for patients with cirrhosis at the Hospital of the Rockefeller Institute for Medical Research[57] included diets high in protein and rich in carbohydrate, but the excellent results accomplished in that hospital were credited largely to the appetite-restoring effects of crude liver extract. In a disease that formerly was regarded as invariably fatal, this high protein, low fat regimen, which includes also the administration of large quantities of vitamins and crude liver extract, is accomplishing unexpectedly happy results.

A similar diet is now used in treatment of infectious hepatitis. Capps and Barker[58] gave their patients with this disease 200 Gm. of protein daily, and Berger[59] described in detail a diet of 3,500 calories successfully used in the Mediterranean Theater of Operations which provided 225 Gm. of protein. This is a great deal of food to offer a patient, but with good nursing he can be induced to take it. What would the physician of thirty years ago have thought of prescribing 225 Gm. of protein daily for a jaundiced man with high grade fever and a large, tender liver? He would have stood aghast, but the general adoption of this regimen gives testimony to the high value placed on protein today.

CONCLUSION

I should like to conclude with a question. The protein quota of the American soldier's ration in the second World War was liberal—more liberal than that of any other soldier in the world—not the 70 Gm. of today's recommended daily allowance, or the 100 Gm. of Lusk, or the 120 Gm. of Atwater—but 140 Gm., and he ate it all. Measured in terms of greater vigor, quicker and more assured recovery from injury and a higher degree of morale, did this liberality of protein allowance in the American soldier's ration contribute to the winning of the war? I believe it did.

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USE OF STREPTOMYCIN IN SURGICAL PATIENTS

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and
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Since the discovery of streptomycin by Waksman[1] (in 1944) data have been obtained which show the value of this drug as an adjunct to the surgical treatment of pulmonary tuberculosis. The demonstration that streptomycin had a beneficial effect on tuberculosis in the guinea pig by Feldman[2] and the report that this drug seemed to improve patients with pulmonary tuberculosis by Hinshaw[3] in 1946 have been followed by other studies concerning the value of streptomycin in pulmonary tuberculosis.

The largest number of cases in which pulmonary tuberculosis treated with streptomycin was evaluated has been collected under the auspices of the Veterans Administration.[4] (Over 3,000 patients with various types of tuberculosis have been treated.) It was found that those patients in whom a beneficial effect was obtained showed clinical response within the first two weeks of therapy. Approximately 60 per cent became afebrile after the administration of streptomycin. It was also found that this agent had little if any beneficial effect or [illegible] us tuberculous lesions or caseous [illegible] of tuberculous pulmonary cavities was variable. Good results were obtained in improving exudative forms of disease while the drug was administered.

The concept of appropriate dosage of streptomycin has been changed.[4c] The present feeling is that as good response can be obtained with 1.0 Gm. of streptomycin given in two doses daily as with the higher doses. One-half gram per day in one dose is probably just as effective as the 1 Gm. a day dose, but not enough data

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have yet been accumulated to permit one to be certain of this fact.

In the Veterans Administration study an arbitrary duration of treatment was chosen. The patients who were to be treated surgically for pulmonary lesions were given streptomycin seven days prior to and for fourteen days after operation. It is possible that shorter courses than this may be effective, but more data will be needed.

The toxic complications are greater with the higher dose.[4c] With 1 Gm. per day there has been a decided reduction in the toxic manifestations. The 0.5 Gm. per day dose has practically no toxic effects. The toxic symptoms are apparently related to the level of streptomycin in the blood. It is interesting that 1.0 Gm. of streptomycin given in five doses a day has a higher rate of toxic complication than does 1.0 Gm. in two doses per day. It would seem from this that the sustained blood level of streptomycin per se is more toxic than an inconstant level.

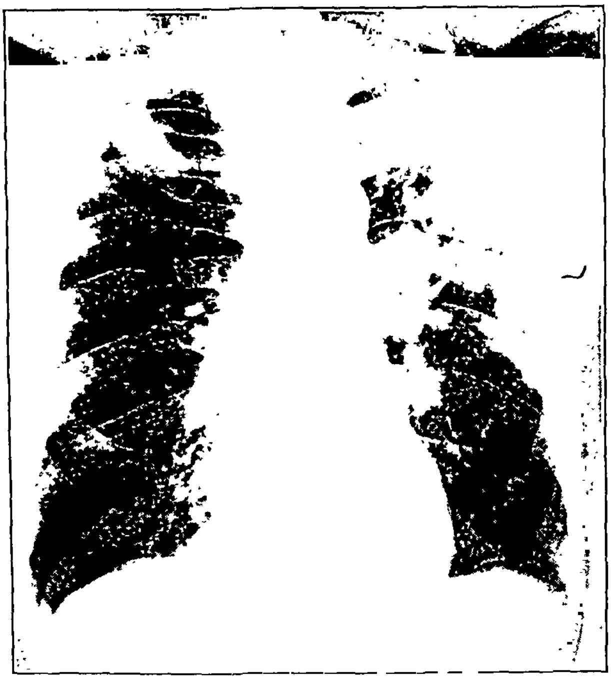

Fig. 1.—Roentgenogram of the chest of a 55 year old Negro man with tuberculosis of the left lung.

Studies have been carried out to learn the absorption rate of streptomycin from the pleural cavity and to learn the pathologic effect of streptomycin on the pleural serosa.[5] It was found that 0.5 Gm. of streptomycin in one dose in the pleural cavity of the dog did not produce any detectable harmful pathologic effects in pleura examined seven days after administration of the streptomycin. It was also found that 0.5 Gm. of streptomycin placed in the pleural cavity of the patient at the time of open thoracotomy produced high blood levels of streptomycin, which were reached rapidly. There were no apparent differences between decidedly scarred and unscarred pleuras. Levels as high as 25 micrograms per cubic centimeter were reached in thirty minutes, which fell gradually during the course of the next four hours and at the end of eight hours had fallen to approximately 1 to 2 micrograms per cubic centimeter.

Studies[4c] concerning the resistance of the tubercle bacilli have demonstrated that in vitro nearly all tubercle bacilli will not grow in 10 micrograms per cubic centimeter of streptomycin. Most tubercle bacilli will stop growing in only 1 microgram per cubic centimeter. However, after one hundred and twenty days of treatment with streptomycin it has been found that 70 per cent of tubercle bacilli will grow in 10 micrograms

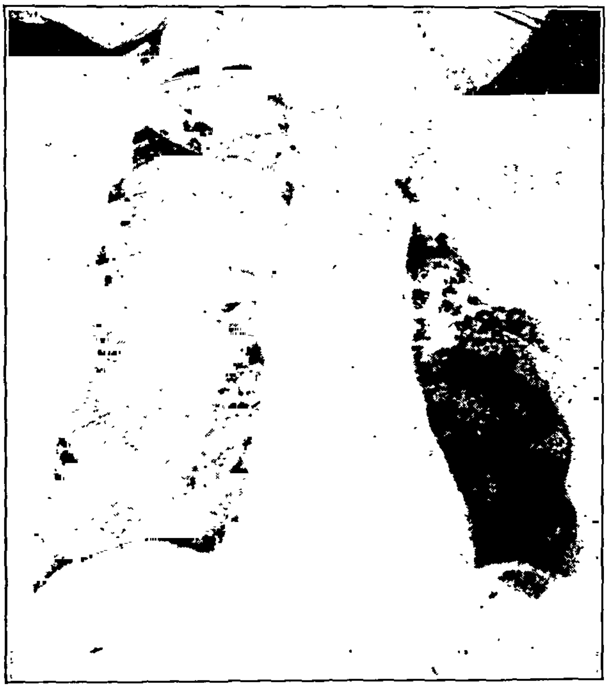

Fig. 2.—Roentgenogram of the chest after three stages of thoracoplasty had been carried out on the patient seen in figure 1. The thoracoplasty was a failure in that the sputum was still positive and tuberculous bronchiectasis in the lower lobe could be demonstrated by a bronchogram.

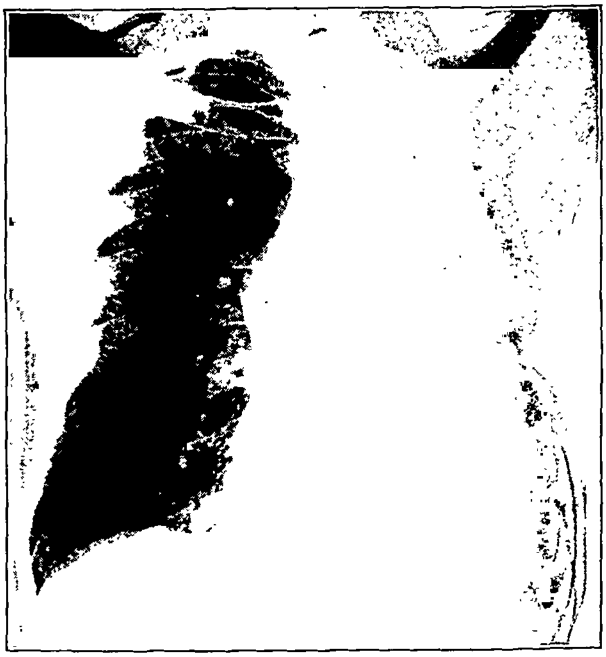

Fig. 3.—A roentgenogram of the chest taken after a left pneumonectomy had been performed on the patient pictured in figures 1 and 2. The patient is now afebrile, asymptomatic and gaining weight.

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[5] Beattie, E. J., Jr.; Blades, B., and Horton, C.: Experimental and Clinical Studies of the Role of Streptomycin in the Pleural Cavity, J. Thoracic Surg., to be published.

per cubic centimeter of streptomycin, that the majority of tubercle bacilli will grow in over 100 micrograms per cubic centimeter and many will grow in over 1,000 micrograms per cubic centimeter. The length of time that it takes for a tubercle bacillus to develop resistance[6] is variable. Apparently it can develop in as little as six weeks.

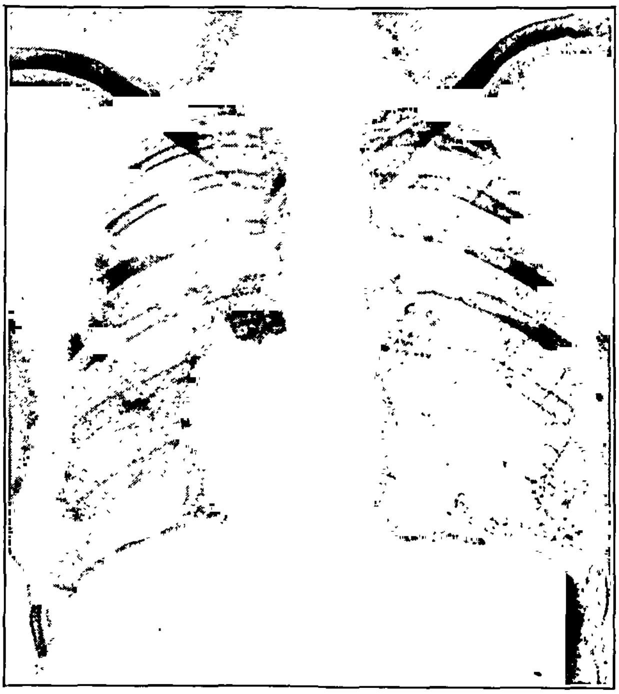

Fig. 4.—Roentgenogram of the chest of a 30 year old white housewife with tuberculous tension cavity in the upper lobe of the left lung. The patient was very sick with a high temperature.

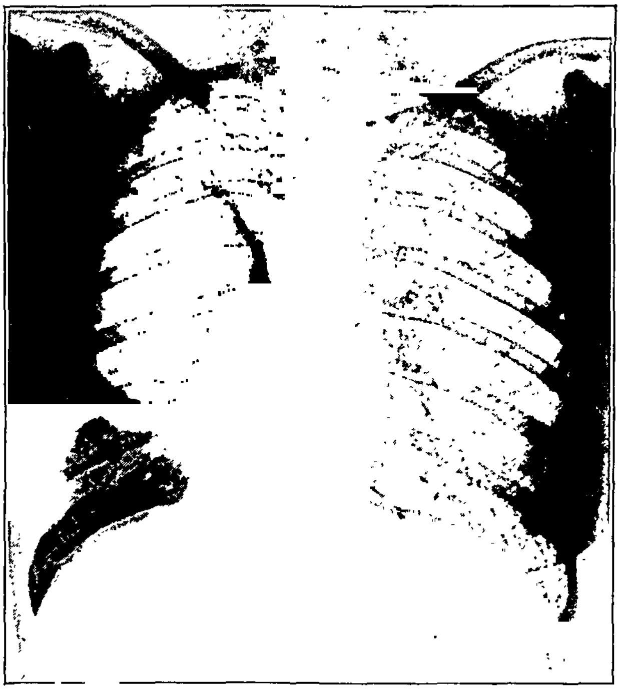

Fig. 5.—Roentgenogram of the patient shown in figure 4. She was treated with streptomycin. The cavity had diminished in size, and she had only a low grade fever at this point.

Prior to the use of streptomycin as an adjunct in pulmonary resection for pulmonary tuberculosis there were 600 cases of resection reported in the American literature since 1933.[7] Of these 600 cases resection was done in 520 after 1942. In this series the total operative mortality rate was 25 per cent. The operation in 12 per cent of the cases was followed by empyema and in 8 per cent by complicating bronchopleural fistulas. Reports of large series of thoracoplasties prior to the use of streptomycin had shown a rate of spread or reactivation of the tuberculosis of approximately 3 to 6 per cent.[7] Empyema following thoracoplasty was rare. Overholt[8] reported that in 104 cases of pulmonary resection without streptomycin for tuberculosis between March 31, 1944 and April 5, 1946, there were 16 deaths, a 15 per cent mortality rate.

The Veterans Administration[7] conducted a study of the value of streptomycin protection for thoracoplasty. In this they had a control series of 249 patients who underwent 648 thoracoplasties. There were 36 cases of tuberculous spread or reactivation (5.6 per cent) and 16 cases of wound infection (2.4 per cent). There were 258 cases in which there were 699 thoracoplasties protected with streptomycin. There were 14 cases of tuberculous spread or reactivation (2 per cent) and 8 cases of wound infection (1.1 per cent). This seems statistically significant, but in a breakdown of the figures from the various clinics it seems probable that there is not a significant difference.

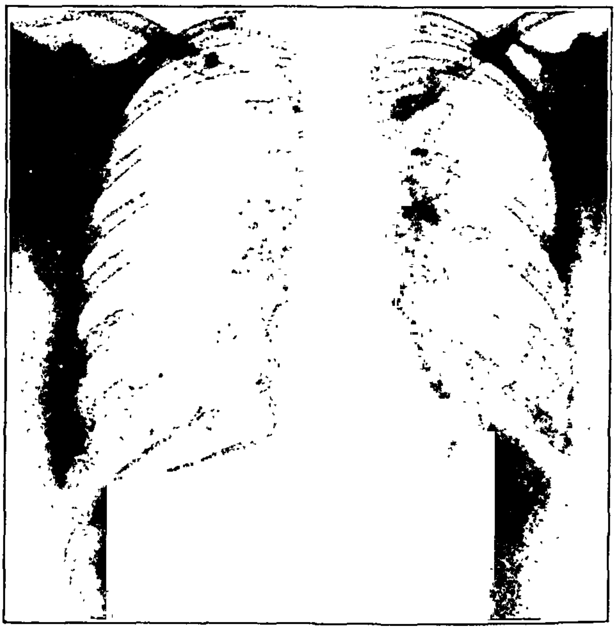

Fig. 6.—This is a film taken post-operatively on the patient shown in figures 4 and 5. The upper lobe of the left lung was removed.

Various authors have reported decidedly beneficial effects of streptomycin in pulmonary resections for tuberculosis. The Veterans Administration[7] reported that in 129 cases of pulmonary resection there have been 5 operative deaths and 1 postoperative death (4.5 per cent mortality rate). There have been 4 cases of tuberculous spread in this series, 8 cases of complicating bronchopleural fistulas, 5 cases of empyema and

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[6] Romansky, M. J.: Streptomycin Studies, personal communication to the authors.

[7] Streptomycin in the Surgery of Pulmonary Tuberculosis, Veterans Administration, Streptomycin Committee, unpublished data.

[8] Overholt, R. H.; Langer, L.; Szypulski, J. T., and Wilson, N. J.: Pulmonary Resection in the Treatment of Tuberculosis, J. Thoracic Surg. **15**: 384, 1946.

6 cases of infection. Moore,[9] in reporting 70 cases of resection in which streptomycin was used, reported 7 per cent operative mortality with 3 per cent tuberculous spreads, 3 per cent complicating bronchopleural fistulas, 2 per cent empyemas and no wound infections. Bailey,[10] in contrasting results in 100 cases of pulmonary resection without streptomycin and those in 100 cases of pulmonary resection with streptomycin, reported that in the 100 of the control series there was a 25 per cent operative mortality rate, 18 per cent tuberculous spread, 8 per cent complicating bronchopleural fistulas and 11 per cent empyemas, whereas in the 100 cases in which streptomycin was used there was an operative mortality rate of 14 per cent with only 1 per cent tuberculous spread, 1 per cent complicating bronchopleural fistulas and 2 per cent empyemas. The Veterans Administration series showing a 4.5 per cent operative mortality rate, in contrast with the reported cases prior to the use of streptomycin with a 25 per cent mortality rate, is striking.

We had a relatively small series of desperate risk patients in whom pulmonary resections and thoracoplasties have been carried out with streptomycin protection. Until June 15, 1948, 15 patients had been operated on who had had 38 thoracoplasties. There were 14 consecutive patients who had pulmonary resections; there were 9 patients who had open pneumonolyses. The dosage of streptomycin used in these cases has changed as more knowledge about the dosage of streptomycin has been obtained. The patients with recent resection received 1.0 Gm. of streptomycin per day in two divided doses for one week prior to operation and two to three weeks following operation. At the time of operation they also received 0.5 Gm. of streptomycin into the pleural cavity. Some of the patients with thoracoplasty received 1.0 Gm. in two doses for one week prior to and two weeks after thoracoplasty, but a considerable number received 0.5 Gm. for one day prior to and four days following operation. All patients have received penicillin in addition to the streptomycin. In this series there have been no deaths and no postoperative spreads. There were 2 cases in which there was a serious impairment of hearing resulting from prolonged courses of streptomycin (2.0 Gm. per day) given in outside sanatoriums. Another patient, operated on too recently to be included in the report, came to us as a desperate risk for resection, having already received enough streptomycin in an outside hospital to make her tubercle bacilli resistant to streptomycin. In spite of combined streptomycin and para-aminosalicylic acid therapy, it seems as if she may have a contralateral tuberculous spread.

This is a small series in which the numbers are not statistically significant, but when one considers the desperate nature of these cases it is probably an important commentary on the value of streptomycin that none of these patients have died or had serious complications. Without streptomycin it could certainly be expected that serious complications should have arisen. The accompanying roentgenograms illustrate results in 2 cases in which pulmonary resections were carried out.

COMMENT

According to the American literature 600 cases of resections for pulmonary tuberculosis have been reported since 1933 without the use of streptomycin. In these cases there has been a 25 per cent operative mortality rate, with 12 per cent empyemas and 8 per cent complicating bronchopleural fistulas. In thoracoplasty for pulmonary tuberculosis a 3 to 6 per cent rate of tuberculous spread with rare empyemas can be expected. In using streptomycin the Veterans Administration reported that in 129 cases they had a 4.5 per cent operative mortality rate. Others have shown comparable reductions in operative mortality. Analyses of 3,000 cases in which streptomycin was used in the Veterans Administration series revealed that 1.0 Gm. in two divided doses per day is probably the optimum dose. Streptomycin therapy should be started seven days prior to and continued for fourteen days after operation. The toxic effects are nearly eliminated with this dosage. Pleural absorption of streptomycin is rapid, and high levels are reached in one hour. Resistance of the tubercle bacillus to streptomycin develops promptly. The exact time is not known, but the bacilli may become resistant in forty days. In a small series reported here, of 38 thoracoplasties, 14 resections and 9 open pneumonolyses, there have been no deaths and no spreads.

Sweet[11] reported a follow-up study of 27 patients with lobectomy and 36 with pneumonectomy at least one year following operation. Of the 27 patients with lobectomy 2 died postoperatively, 5 died of tuberculosis, 7 were alive with positive sputum and 13 were well with normal sputum. Of the 36 patients with pneumonectomy 7 died postoperatively, 7 died later of disease, 5 were alive with positive sputum, 1 was clinically well with positive sputum and 16 were well with normal sputum.

We have followed a policy of doing phrenic nerve crushes for lower lobe lobectomies, partial thoracoplasties for upper lobe lobectomies and thoracoplasties following pneumonectomies in patients who had not had collapse measures carried out prior to resection.

The elapsed time postoperatively has not been long enough to permit analysis of the postoperative condition of the patients in our series.

With the added protection which streptomycin affords pulmonary resection for tuberculosis it is technically possible to carry out major resection in desperate risk patients. However, one must be cautious in removing large amounts of lung tissue. We have already seen evidence that the pulmonary reserve in these patients may be inadequate for normal living, even though the tuberculosis is eradicated.

CONCLUSION

Streptomycin is a valuable adjunct in the surgical treatment of pulmonary tuberculosis. The immediate complications are decidedly reduced. Not enough time has yet elapsed to determine that the long range survival rate will be better in the patients treated with streptomycin than in those undergoing resection for pulmonary tuberculosis prior to the use of streptomycin.

In a series of desperate risk cases of pulmonary tuberculosis treated surgically there have been no deaths and no spreads. The fact that resistance of the tubercle bacillus to streptomycin develops in as little as six weeks makes it important that streptomycin be reserved for surgical treatment in any cases which may potentially be surgical. It should not be used in the cases of minimal pulmonary tuberculosis.

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[9] Moore, J. A.; Murphy, J. D., and Elrod, P. D.: An Evaluation of Streptomycin as a Protective Agent in Pulmonary Resections for Tuberculosis, J. Thoracic Surg., to be published.

[10] Bailey, C. P.; O'Neill, T., and Glover, R. P.: Results in Pulmonary Resection for Tuberculosis (One Hundred Cases Without Streptomycin Contrasted with One Hundred Cases Operated with Streptomycin Therapy), J. Thoracic Surg., to be published.

[11] Sweet, R. H.: Lobectomy and Pneumonectomy in the Treatment of Pulmonary Tuberculosis, J. Thoracic Surg. 15: 373, 1946.

ABSTRACT OF DISCUSSION

Dr. Emil Bogen, Olive View, Calif.: No doubt the administration of streptomycin prior to operation may lead to regression of soft exudative, components of lesions and decided reduction in sputum volume and bacillary content, but for such preparation it would generally be expected that treatment for more than a few days to a week before operation should be given to obtain the maximum effect in this direction. If streptomycin were actually bactericidal, its administration at the time of operation might be of value, but, since my own experiments and those of many others indicate that its effect is purely to retard multiplication of the bacilli and that it does not kill them, this local or simultaneous administration may give the surgeon undue confidence in a futile effort. Similarly, streptomycin administered after operation is extremely effective in the treatment of any spreads or reactivation which may have occurred as a result of aspiration, dissemination or trauma during the operation. If such spreads occur it would scarcely seem adequate to treat them for only a week or two following their production. It would seem wiser, therefore, for surgeons to withhold streptomycin during and for a short time following the operation, until evidence of spread or infection of the chest has actually been observed, whereupon adequate treatment for at least a month, or six weeks, might better be expected to care for such complications. Otherwise, patients may show spreads after cessation (two weeks after resection) of the usual so-called protective regimen. I wish to ask Dr. Beattie and Dr. Overholt whether in their experience spreads are not more apt to occur after the second rather than the first stage of thoracoplasty and whether delayed spreads, some months after resections, are not more to be feared than immediate spreads at the time of operation. If this is generally true, would it not be wise to retain sensitivity to streptomycin on the part of the tubercle bacilli remaining in the chest by withholding the treatment until such complications have developed? Administering streptomycin for an illusory protection before and at the time of operation may result in the development of resistant forms of tubercle bacilli which may prove refractory to treatment administered at a later time when it might be more logically expected to be of value. Streptomycin is a wonderful agent for the preparation of tuberculous patients for surgical treatment of the chest, making possible operations on many patients who would otherwise not be able to receive such treatment and greatly lessening the dangers of the operation. It is also a valuable agent for the treatment of any spreads or reactivations which may occur as a result of operation.

Dr. Richard H. Overholt, Boston: I am inclined to agree that the word protection is not the right one to use in this connection. Each surgeon is interested in conducting all patients through the operation as safely as possible. He is balancing risks. There are certain hazards in anything he does, and there is also a hazard in the disease. If it is possible to prepare a patient by various methods so that the risk of operation will be reduced, then, of course, those methods should be used.

Dr. Edward J. Beattie, Washington, D. C.: In reply to questions that were brought up, the Veterans Administration study was carried out to see whether streptomycin is really necessary in patients who are to have thoracoplasty. At present we do not seem to have enough information to warrant the use of streptomycin in the ordinary case, but there is also the problem of whether thoracoplasty cannot be done in cases in which the operation previously had been refused because the disease was too acute or the patient was too febrile at the time. As regards the duration of treatment, we feel that, if the decision is made to use streptomycin during the course of the thoracoplasty, in as much as resistance seems to develop in most cases in one hundred and twenty days and in many cases in six weeks, it is necessary to use an elapsed time so that all the thoracoplasty can be carried out while the tubercle bacillus is still sensitive to streptomycin. Since thoracoplasty takes in about four to six weeks, that is the determining factor. The Veterans Administration has proved that there is little doubt that streptomycin cuts down the incidence of postoperative complications, which has been high in most of the previous reports. As regards the long term follow-up, what will happen later in the cases of resection in which there has been preparation with streptomycin, we are not prepared to say. It will take a longer time to follow up these cases.

DIAGNOSIS AND TREATMENT OF INDUSTRIAL SOLVENT POISONING

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Many different kinds of solvents are used in industry today. Some of these are rather toxic. Every practicing physician is liable to encounter patients who are suffering from the effects of overexposure to these solvents. It is well, therefore, to become aware of their toxic properties and to review the symptoms and treatment of overexposure to them.

The common solvents can be classified into groups. These include the aromatic hydrocarbons, the chlorinated hydrocarbons, petroleum distillates, ketones, esters, alcohols and carbon disulfide. The toxicity of these compounds varies considerably. It is impossible to discuss here all of the various members of these groups; consequently, for the sake of brevity, representative members will be discussed.

AROMATIC HYDROCARBONS

Representative of the aromatic hydrocarbons is benzene. It is considered to be one of the most dangerous of the industrial solvents. It can be absorbed by the respiratory tract, the alimentary tract and probably the skin.

Cases of poisoning in human beings have been found with exposure to atmospheric concentrations as low as 25 parts per million. Concentrations of 50 to 100 parts per million are considered to be safe for the average person. Individual susceptibility varies. Acute benzol poisoning is rare. The symptoms of acute poisoning are referable to the central nervous system. There are muscular tremors, salivation, violent twitching, exhaustion, narcosis, paralysis, convulsions and death from paralysis of the respiratory center.

Patients exposed to concentrations of vapors between 50 to 500 parts per million, with the average concentration being about 100 parts per million, show symptoms of lassitude, malaise, nausea, vomiting, dizziness and headaches. Macular dermatitis may appear. As exposure continues symptoms become more severe. Hemorrhages under the skin and from the body cavities may occur. Ecchymosis and petechiae may be the first symptoms noted. Diplopia, especially for close distances, occurs in some cases. If the person is highly susceptible, or if the exposure has been great and prolonged, he may get physiologic or functional depression of the bone marrow. This varies in degree from a slight hemopoietic suppression to a total bone marrow aplasia.

The symptoms of a total aplasia are usually those of benzol absorption followed by prostration. On the other hand, it is sometimes strange how well the patient may appear. Aside from fatigue there may be no other complaints.

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The best index of benzol absorption is the blood cell count. All components of the blood are affected, being lowered. Most important, the total leukocyte count falls. Special reference should be made to the differential count. The ratio of polymorphonuclear cells to monocytes is changed. The number of monocytes increases and the polymorphonuclear cells decrease. The red blood cell count is lowered. The hemoglobin usually falls. It has been reported by some investigators that the leukocyte count may be elevated at first. However, when this occurs it is quickly followed by a general lowering of the count. The platelet count is lowered, dropping to practically zero in cases of severe disease. The reticulocyte count is also lowered. The prothrombin time is normal. The red blood cells exhibit anisocytosis, poikilocytosis and polychromatophilia. In all patients showing a decided blood reduction a bone marrow biopsy should be done. The degree of aplasia can be determined, and usually an accurate prognosis can be made. Patients with total aplasia usually die. Patients with partial aplasia have a prognosis dependent on the amount of regeneration present. Results of urinalysis are usually negative. The blood pressure may be lowered.

Aplastic anemia is to be differentiated from granulocytopenia and acute leukemia. The symptoms of all of these diseases are very similar. In granulocytopenia the red blood cell and platelet counts are usually essentially normal. In acute leukemia the white blood cell count may be normal, raised or lowered, with the differential count showing a decided increase in very young white blood cells. The liver and spleen are usually enlarged in acute leukemia and are normal in aplastic anemia and granulocytopenia. Sore throat is common in leukemia and especially so in granulocytopenia. It must be recognized that the differential diagnosis in these three diseases may be difficult. Bone marrow studies usually reveal the proper diagnosis.

In patients with mild benzene intoxication, with or without a change in the blood cell count, the treatment is permanent removal from exposure. These patients will return to normal in a few days with no medication.

In patients in whom absorption is sufficient to cause a decided change in the blood picture more active treatment is necessary. These patients are given absolute bed rest. Multiple small whole blood transfusions (about 250 cc.) are given as often as once daily. When severe reactions occur, blood plasma may be used in place of whole blood.

Direct bone marrow transfusions may be given as often as twice weekly. In this procedure 2 to 5 cc. of bone marrow are removed from the sternum of a compatible donor and introduced directly into the sternum of the patient. From the same donor 250 cc. of blood are drawn and transfused into the patient. This is followed by 1,000 cc. of isotonic sodium chloride solution.

Large daily doses of liver, iron, calcium, phosphorus, yellow bone marrow and multiple vitamins are given. A full diet is prescribed. The patient's general hygiene is improved as much as possible. Bleeding areas are stopped if at all possible. Pentnucleotide® (the sodium salts of the pentose nucleotides from the ribonucleic acid of yeast) has been used and found to be effective in some cases.

The poor resistance in these patients is due to the lowered leukocyte count. Secondary infection, the commonest of which is a Vincent's organism infection of the mouth, is one of the causes of death. For certain types of severe secondary infection, the antibiotics are indicated.

The response to therapy is slow, since a considerable time is necessary for the bone marrow to regenerate. Splenectomy may be considered in some cases of refractory disease. Any treatment at best is not wholly satisfactory. Extreme caution must be observed in the handling of this chemical. In too many patients overexposure proves fatal.

Atmospheric concentrations should not exceed 100 parts per million. Skin contact with benzene should be avoided. Blood cell counts, including hemoglobin, red and white cell, and differential determinations should be made for all exposed persons at least every two months. Sternal bone marrow examinations should be done in suspicious cases. Persons with blood or bone marrow abnormalities should be considered for immediate and permanent transfer away from these solvents. Wherever possible an attempt should be made to substitute less toxic solvents.

CHLORINATED HYDROCARBONS

Probably the most commonly used member of the chlorinated hydrocarbon group is carbon tetrachloride.

The symptoms of overexposure to the chlorinated hydrocarbons usually start with a feeling of drowsiness, which, if exposure continues, is accompanied with anorexia, nausea, vomiting, abdominal pain, diarrhea, headache and dizziness. Jaundice may develop. Oliguria progressing into anuria may also develop. In some the occurrence of bronchitis or bronchial pneumonia has been reported. Some persons present hypertension. A constriction of the visual color fields has also been noted. Polyneuritis has been described. The mode of action is that of a narcotic with direct or indirect effects on the central nervous system. The chlorinated hydrocarbons also act as hepatotoxics, probably causing cirrhosis of the liver. This is especially noted when the diet has been deficient in calcium or there has been a depletion of body protein. The kidneys appear to be primarily involved in acute intoxications, the lesion being described as destruction of the epithelium with the stroma left intact. Hypertension and azotemia may accompany the kidney involvement. Acute exposure to the chlorinated hydrocarbons is usually manifested by narcotic intoxication, with liver and renal damage in six to twenty-four hours. The symptoms of chronic poisoning usually simulate those of portal cirrhosis.

A careful evaluation of the patient should be made, including tests of hepatic function, tests of renal function, electrocardiogram and roentgenogram of the chest. Dextrose should be given intravenously, either in isotonic sodium chloride solution or distilled water. A high carbohydrate–high protein diet with a normal fat content is recommended. Methionine and choline have been reported to be of benefit. The patient should be kept under observation until all signs of hepatic and renal damage have disappeared or have become nonprogressive.

Workers should be carefully selected. Obese and undernourished persons, nephritic and diabetic persons, those with pulmonary and hepatic disease and those having an enlarged thymus or thyroid should be rejected. Frequent physical inspections of exposed persons should be made, particular attention being paid to renal and hepatic function. Atmospheric concentrations should not exceed 100 parts per million. Skin contact should be avoided.

KETONES

The common ketones used in industry are acetone and methyl ethyl ketone. In my experience no cases of occupational disease have been attributed to the ketones. A narcotic action has been attributed to acetone when given to animals. It is known that when persons are exposed to moderate concentrations of acetone, it may be found in the urine without clinical symptoms being noted. It is wise to suspect that the ketones have a narcotic action and may cause a depression of the body temperature, respirations and heart rate. Exposure to excessive atmospheric concentrations of most of the ketones results in severe optic and respiratory irritation. Treatment is entirely symptomatic.

Personal comfort is the determining factor as to the tolerable atmospheric concentration. Skin contact should be avoided.

The esters commonly used are methyl acetate, ethyl acetate, isopropyl acetate and butyl acetate. Some of the esters have an irritating action on the respiratory passages. They are also irritating to the eyes and may cause slight narcosis. In general the acetates are considered to be among the safest of the solvents. No cases have ever been reported of genuine acetate poisoning. Treatment is entirely symptomatic.

Since these chemicals are not considered severely toxic, in most cases the maximum allowable concentrations are based on comfort requirements. Skin contact may result in dermatitis and should therefore be avoided.

ALCOHOLS

The most toxic of all of the alcohols is methyl alcohol. Methyl alcohol is a source of grave injury to many industrial workers. It has a specific action on the optic nerve, and with long enough exposure blindness may result. The action is that of inflammation of the optic nerve followed by atrophy. A considerable amount of methyl alcohol poisoning was noted during prohibition days when wood alcohol was used in large amounts with subsequent optic nerve degeneration and blindness. The other alcohols, because of their volatility, are not considered to be especially dangerous. Cases of narcotic poisoning have been attributed to them. The higher alcohols, like butyl and amyl, have an irritant action as well as some poisonous action on the protoplasm.

If methyl alcohol is taken internally, the use of an emetic is indicated. Four per cent sodium bicarbonate solution, as a gastric lavage, is excellent. When the toxic action results from absorption through the skin, a lavage is of no benefit. Because acidosis due to the formation in the system of formic acid results, sodium bicarbonate or sodium lactate given orally or intravenously is advisable. This treatment should be continued until the acidosis has been corrected. The patient should be kept warm and symptomatic treatment offered. With the exception of the eyes, most abnormalities from chronic exposure clear up after cessation of exposure. The treatment of exposure to the other alcohols is entirely symptomatic.

As with all solvents, prolonged skin contact should be avoided. This is especially true of methyl alcohol, which can be absorbed through the skin in sufficient quantities to be harmful. Physical examinations of personnel exposed to methyl alcohol should be made at two to three month intervals. This should include an ophthalmologic examination. Atmospheric concentrations of methyl alcohol should not exceed 200 parts per million.

PETROLEUM DISTILLATES

Probably the best known of the petroleum distillates is gasoline. These distillates are narcotics, and it is possible to produce complete anesthesia with heavy doses. However, their anesthetic properties are much less than those of the aromatic and chlorinated hydrocarbons. For this reason they may be more desirable for commercial use.

The susceptibility of human beings varies greatly. Acute poisoning produces the symptoms of a narcotic. There is fulness of the head, headache, blurred vision, dizziness, unsteady gait and nausea. The patient becomes irritable. Burning of the eyes and dimness of vision are common complaints. It is of interest to note that on exposure to air the symptoms become aggravated at first. Massive exposures may cause sudden collapse, coma and death. In fatal cases there is usually some blood vessel damage, with small hemorrhages into the body organs. Bronchitis, pulmonary edema and cellular damage of the kidneys, liver and the spleen have been described. The symptoms of chronic poisoning are usually central nervous system in origin. Epileptiform seizures, unconsciousness, tonic muscular spasms, lancinating pains in the limbs, coldness and numbness in the hands, loss of strength, loss of memory, drowsiness, dimness of vision, confusion and dulness of mentality and tremors have all been described.

Degeneration of the pyramidal tracts has been described. The effect of chronic petroleum distillate poisoning on the blood is a matter of controversy. It is usually felt that the effect of gasoline fumes on the blood differs from that of benzene only in degree. It must also be mentioned that certain petroleum distillates are suspected of containing carcinogenic substances. At the present time considerable research is being performed along this line.

The treatment of acute petroleum distillate poisoning should be directed toward the prevention of respiratory and circulatory collapse. After intense exposures pulmonary edema usually occurs. Oxygen therapy, preferably with a face mask and positive pressure, is indicated. Saturated clothing should be removed. Circulatory and respiratory stimulants may be necessary. Bronchopneumonia may develop. Treatment with the antibiotics may then be necessary. Most of the patients are rather nervous and restless. Sedation may be indicated. Conjunctivitis may be treated by dropping 1 : 1,000 epinephrine solution into the eyes four times daily, followed by cold applications. Boric acid ophthalmic ointment may also be used. Iron medication should be given if anemia develops.

The maximum allowable concentrations of gasoline have been stated to vary from 100 to 1,000 parts per million. These solvents are not considered to be severely toxic, and in most cases the values are based more on personal comfort than on toxic requirements. Skin contact should be avoided.

CARBON DISULFIDE

Carbon disulfide has long been recognized as an industrial poison. The commonest symptom is neuritis, which may affect any of the nerves and most commonly involves the nerves of the limbs and certain of the cranial nerves. Both the motor and the sensory nerve fibers are affected, causing abnormal sensations and loss of power. This is an insidious type of poisoning in which permanent damage to the brain may result. The mental symptoms may be exhibited in varying degrees, ranging from simple irritability and depression to manic depressive insanity.

There is no specific treatment for chronic carbon disulfide poisoning. A diet high in vitamin content with an adjunct of vitamin B complex may be of value. Liver extract may be given. It is very important that necessary precautions be taken to avoid overexposure to this compound. Atmospheric concentrations should not exceed 20 parts per million. Skin contact must be avoided. Periodic physical examinations which include a careful examination of neurologic symptoms should be made at monthly intervals on all persons handling the compound. Removal from contact with it is imperative at the first intimation of any unusual symptoms. The drinking of alcoholic beverages by exposed personnel should be discouraged.

THE PNEUMONOCONIOSES

Which Industrial Dusts Are Inert? Which Are Harmful? Why?

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The term pneumonoconiosis has been so loosely applied to industrial pulmonary conditions that some clarification appears to be desirable. It is an all-inclusive caption for a variety of pulmonary affections resulting from the inhalation of inert or harmful dust. Generically it does not imply fibrosis but simply "dust in the lungs." If one is to accept this meaning, therefore, pneumonoconiosis must include any retention of dust in the lungs, whether of industrial origin or not and whether of toxic, irritant, proliferative or inert dust. It must also include the anthracotic pigmentation from dust, carbon and smoke which all normal lungs exhibit; in the interpretation of pathologic change, the matter of degree as well as specificity must be considered.

From a practical standpoint, however, pneumonoconiosis refers mainly to pulmonary alterations attributable to those dusts encountered in industry which can cause proliferative reactions, roentgenologic patterns due to radiopaque properties or simple exaggeration of normal linear markings. These changes are entirely distinct from the action of toxic dusts, such as lead or mercury, for which the lungs act merely as the point of entry into the body. They differ also from the reactions produced by mycotic and other organic dusts, as will be explained.

Industrial dusts are listed by Kronenberg and Morse[1] as follows:

I. Organic Dusts:
  A. *Nonliving:*
    1. Toxic and/or irritant
  B. Living:
    1. Bacterial
    2. Fungous
II. Inorganic Dusts:
  A. Toxic and/or irritant
  B. Fibrosis-producing
  C. Nonfibrosis-producing

Classification of industrial dusts into "harmful" and "inert" categories is not easy because some which are usually considered innocuous may produce definite pathologic changes under certain conditions, such as prolonged excessive exposure. In the following modification of Sander's[2] grouping, certain dusts are designated as harmful even though they do not produce fibrotic pulmonary alterations.

Organic dusts arise mainly from animal or vegetable materials, but many are synthetic. They do not cause pulmonary fibrosis but are capable of producing local irritation which results in such things as dermatitis, dental lesions, irritation of the mucous membranes and conjunctivitis. Sappington[3] has listed more than one hundred occupations in which these symptoms and/or allergic manifestations may be produced from substances like pollens, horse hair, furs, wool and wood dust.

Byssinosis, an occupational condition resulting from dust encountered in the cotton industry, has been reported in Europe as a definite occupational disease, but its existence as a clinical entity in this country is questionable. Acute symptoms and roentgenologic findings suggestive of pneumonia of the influenzal type have followed exposure to an organic dust produced by crushing or shredding bagasse, a waste product of sugar cane. The condition is described as bagassosis and, like byssinosis, may be due to an allergic reaction rather than to actual pathogenic properties of the dust itself. There is also some recent evidence to show that bagassosis may be caused by a fungus or possibly by bacteria attached to the dust and that the dust itself is relatively innocuous.[4] C. F. Long[5] investigated more than 1,247 workers in the tobacco industry and concluded that tabacosis does not develop in the lungs of those who inhale tobacco dust. Recent studies, however, by McCormick, Smith and Marsh[6] indicated that there may be a significant free silica hazard in the stemming and redrying operations in that industry.

Pulmonary diseases caused by fungous infections have been receiving more attention in recent years. Increasing recognition of these cases has led many observers to believe that they may be more prevalent than is generally supposed. Mycotic diseases are usually nonindustrial and are found only in certain geographic locations. Nevertheless some cases have been attributed to occupational exposure. In 1945 Coe[7] reported a case of bronchopulmonary aspergillosis, occurring in an employee of the Chicago Stock Yards, for which an award of compensation was granted and upheld by the Industrial Commission of Illinois.

Fungi are filamentous plants of simple structure, among them being various yeasts and molds. They may attack the lungs or other parts of the body and

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[1] Kronenberg, M., and Morse, K. M.: Health Hazards of Occupational Environment, Circular 154, Springfield, Ill., Illinois State Department of Health.

[2] Sander, O. A.: The Pneumoconioses, personal communication to the author, Nov. 14, 1944.

[3] Sappington, C. O.: Essentials of Industrial Health, Philadelphia, J. B. Lippincott Company, 1943, pp. 186-187.

[4] Gerstl, B.; Tager, M., and Marinaro, N. A.: Pathogenicity of Bagasse, Arch. Path. **44**: 343-349 (Oct.) 1947.

[5] Long, C. F.: Tobacco Dust and the Human Lung, Indust. Med. **8**: 365-369 (Sept.) 1939.

[6] McCormick, W. E.; Smith, M., and Marsh, S. P.: Health Hazards of the Tobacco Stemming and Redrying Industry, J. Indust. Hyg. & Toxicol. **30**: 43-51 (Jan.) 1948.

[7] Coe, G. C.: Primary Bronchopulmonary Aspergillosis, an Occupational Disease, Ann. Int. Med. **23**: 423-425 (Sept.) 1945.

give rise to such conditions as moniliasis, aspergillosis, sporotrichosis and coccidioidomycosis. It is important for one to bear this fact in mind, particularly when reviewing the industrial roentgenogram of the chest. The pulmonary shadows produced by yeasts and molds may easily be confused with those caused by free silica unless careful consideration is given to the patient's occupational history and exposure to dust.

In recent years considerable research has been done on multiple pulmonary calcification. This condition has been commonly observed in roentgenograms of the chest of persons living in the south, central and eastern states. It has been described under such names as miliary calcification, calcicosis and "wheatena." The origin of the small, widely scattered, sharply defined calcified nodules was obscure until a short time ago, but it now seems reasonably certain that they are caused by the fungus Histoplasma capsulatum. Histoplasmosis has usually been considered a fatal disease, but it now appears that there may be a benign form which is asymptomatic, nondisabling and evident only by the characteristic roentgenologic appearance. It is not clinically significant, and there should be no difficulty in distinguishing the condition from silicosis or other occupational diseases manifested roentgenologically.

Table 1.—*Industrial Dusts*

Harmful or Potentially Harmful		Inert	
Substance	Type of Effect	Substance	Type of Effect
I. Organic			
A. Animal	Allergic		
Dander			
Fur			
Hair,			
Etc.			
B. Vegetable	Allergic or infectious pneumonitis		
Pollens			
Grains			
Cotton (byssinosis)			
Sugar cane (bagassosis)			
Tobacco (tabacosis)			
C. Bacteriae			
D. Fungus			
Aspergillosis			
Coccidioidomycosis	Irritant		
Blastomycosis	Fibrogenic		
Sporotrichosis	Allergic		
Geotrichosis	(Occasionally occupational)		
Moniliasis			
Histoplasmosis			
II. Inorganic			
A. Metallic			
Chrome and its compounds	Irritant, causing local irritation of upper respiratory tract	Carbon (Anthracosis)	Roentgenologic changes only
		Calcium (Calcicosis)	
		Iron (Siderosis)	
Cadmiun		Barium (Baritosis)	
Arsenic	May be toxic	Tin (Stannosis)	
Lead	Absorption and intoxication	Aluminum	
Manganeses		"Carborundum" (silicon carbide)*	
Mercury		Emery †	
Zinc		Aluminum oxide	
Beryllium	Pneumonitis		
Bauxite	Chronic granulomatosis (exact etiology undetermined)		
B. Free Silica (silicon dioxide)			
C. Silicates		Talc, mica, soapstone, feldspar, etc.	(Few cases reported; e. g., talc "pneumonoconiosis," probably due to quartz impurities)
Asbestos (Only silicate thought capable of producing fibrosis)	Asbestosis	Talc	
		Mica	
		Soapstone	
		Feldspar	
		Etc.	

* Carborundum does not exist in nature but is a manufactured product fused from sand, coke and sawdust.
† Emery is an aluminum oxide manufactured from bauxite. Corundum is natural aluminum oxide.

Certain of the inorganic dusts are primarily irritant, and their consequence is local inflammation of the upper respiratory tract. They are not proliferative but if inhaled in sufficient amounts may produce general poisoning. These include such substances as chromium and its compounds, cadmium and arsenic. While it is recognized that the great majority of industrial dusts are inert, as far as causing disabling fibrosis is concerned, one should not forget that certain other substances can produce dust or fumes which may cause serious illness. These are the heavy metals, such as lead, mercury and manganese. As pointed out earlier, dust or fumes from them do not cause structural lung changes but merely use the lungs as a portal of entry into the body. In later years serious toxic effects have been attributed to beryllium and its compounds and to fumes arising from the fusing of bauxite in the manufacture of artificial abrasives. These two conditions have resulted in severe pneumonitis with definite roentgenologic findings and some fatalities. The exact etiology has not yet been determined in either, and it is questionable whether they should be classified as pneumonoconioses until their status has been more accurately demonstrated.

When inhaled over long periods of time certain dusts may produce shadows in the roentgenogram which closely resemble those of silicosis, so that one should resist the temptation to make a diagnosis of occupational disease on the roentgenologic factor alone. Some physicians have had the embarrassing experience of making a "long distance" diagnosis solely from the roentgenogram, only to find out later that the person concerned had worked in an office all his life without ever having been subjected to dangerous dust. Even when the roentgenologic evidence is associated with a history of employment in a dusty industry, care should be exercised by the examiner to make sure that the occupation offers adequate exposure to dangerous-sized particles of material capable of causing actual damage to pulmonary tissue. It is still a common practice among physicians and roentgenologists who have insufficient knowledge of industrial environments or modern hygienic practices to arrive at premature and inaccurate conclusions simply because they have based their interpretations on too little information. Unfortunately they sometimes express very dogmatic opinions without stopping to consider the effect on the employer or the worker himself.

The distressing features of this conduct are that employees become needlessly alarmed, forsake their lifetime vocations, suffer financial loss and forfeit seniority. Industry is deprived of the services of skilled workmen, confronts lowered production and faces unjust and costly litigation—all because of unwarranted roentgenologic interpretation and unfamiliarity of the examiner with progressive industrial medicine and hygiene.

The number of unrelated conditions capable of producing roentgenographic shadows in the lungs simulating silicosis is constantly increasing. In 1946 I listed some 23 of these, which ranged all the way from certain cardiac afflictions to exaggerated linear markings representing pulmonary vascular changes due to advancing age.

Gardner[8] and others have demonstrated that silicosis is likely to develop only when significant concentrations of respirable-sized particles (those smaller than 10 microns, and especially those smaller than 3 microns) of free or uncombined silica have been inhaled over long periods of time (2 to 25 years, with an average of 10 years). This fact emphasizes the need for careful appraisal of injurious contamination by dust in the actual working places and correlation of this appraisal with the occupational history, clinical and roentgenologic findings when one is evaluating any case of suspected occupational fibrosis. The most important consideration in any such investigation is, "How is the man himself affected?" Although the amount of visible dust in the atmosphere around a specific job appears to be great, that fact does not necessarily mean that pathologic quantities of the particles are reaching the alveoli of the lungs. Accumulations at the breathing level and the defensive mechanism of the upper respiratory tract must be taken into account along with the length and constancy of exposure.

The absence of pathologic change in the presence of the inert dusts may be explained in part by several factors. The natural barrier to dust provided by the anatomic arrangement of the upper respiratory tract, the ciliated epithelium of the mucous membrane lining the bronchi down to the terminal bronchioles, and the phagocytic cells in the alveoli all serve to eliminate inhaled dust. When one considers a pulmonary ventilation rate of some 18 cubic feet per hour, which may increase from 50 to 80 cubic feet per hour on exertion, it is not difficult to see how well this defensive mechanism of the body works. The long period required for the development of recognizable silicosis, even under heavy exposure, attests the efficiency of the arrangement.

The size of the particles of the offending dust is also an important consideration. To be inhaled, dust must be air borne and also must be small enough to reach the alveoli. The diameter of an alveolus is approximately 250 microns, but, as pointed out previously, experience has demonstrated that very few particles of more than 10 microns in size ever reach them, certainly not enough to produce damage. And, as was also stated before, the inert dusts do not appear to have a chemical reaction on lung tissue, such as silica does. This factor is perhaps one of the most important reasons why these dusts do not cause fibrosis.

It may be said that up to the present time only free silica and asbestos have been believed capable of causing definite pulmonary fibrosis, and the reaction in each instance is quite different. Most of the other pneumonoconioses exhibit a characteristic tissue response. According to Gardner[9] the roentgenographic appearance in these cases consists of a mere accentuation of the normal, branching, treelike shadows, cast chiefly by the blood vessels. It represents a simple linear fibrosis and is difficult to distinguish from the mild accentuation of linear markings sometimes seen in roentgenograms of persons with no known history of exposure to dust. He designated this effect as "benign nonspecific pneumonoconiosis," and it includes every known reaction to mineral dust except that to soluble poisons, such as lead; the specific diseases silicosis and asbestosis, and certain "roentgenologic conditions," such as baritosis, stannosis and the pseudonodulation of arc welders. Numerous observers have pointed out that deposition of inert iron oxide into the lungs from occupations like welding, burning, polishing and grinding has resulted in pigmentation of the pulmonary tissue, which gives rise to discrete nodular shadows closely resembling those produced by free silica. Postmortem examinations of several patients with these signs have shown no evidence of the typical nodular fibrosis of silicosis.

Table 2.—*Classification of Pulmonary Conditions, Roentgenograms of Which Simulate Those of Silicosis*

- A. From Industrial Dusts
  - I. Organic
    - (a) Byssinosis
    - (b) Bagassosis
    - (c) Tabacosis
  - II. Inorganic
    - (Inert)
      - (a) Anthracosis
      - (b) Radiopaque Deposits
        - Barium (Baritosis)
        - Iron (Siderosis)
        - Tin
    - (Toxic)
      - (c) Reaction to Beryllium
    - (Proliferative)
      - (d) Asbestosis
- B. From Nonindustrial Dusts
  - I. Mycotic
    - (Yeasts and Molds)
      - (a) Aspergillosis
      - (b) Moniliasis
      - (c) Wood dust spore infection
      - (d) Coccidioidomycosis
      - (e) Blastomycosis
      - (f) Actinomycosis
  - II. Miscellaneous
    - (a) Miliary tuberculosis
    - (b) Sarcoidosis
    - (c) Mitral Stenosis
    - (d) Cancers (metastases)
    - (e) Vascular changes
    - (f) Miliary calcicosis ("wheatena")
    - (g) Erythremia
    - (h) Bronchiolitis

For the past two and a half years, because of roentgenologic findings suggestive of silicosis in the roentgenograms of the chest of some burners and grinders, my associates and I have been conducting experimental work at the Saranac Laboratory, in which studies animals have been exposed to representative concentrations of air-borne dust from grinding operations. Analysis of this dust shows relatively low amounts of free silica but very high quantities of iron oxide particles. Animals killed thus far demonstrate no pulmonary reaction except that comparable to reactions from other inert dusts. The work is continuing, and results will be published when sufficieint time has elapsed to produce valid conclusions. Other inert dusts, like those derived from tin and barium, are capable of causing changes in the roentgenologic pattern which, although very evident in the film, are nondisabling and do not result in fibrosis. They are very important, however, from the standpoint of diagnosis.

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[8] Gardner, L. U.: Pathology of Silicosis, in Kuechle, B. E.: Second Symposium on Silicosis, Wausau, Wis., Employers Mutuals, 1935.

[9] Gardner, L. U.: The Pathology and Roentgenographic Manifestations of Pneumoconiosis, J. A. M. A. **114:** 535-545 (Feb. 17) 1940.

It has long been recognized that silica, or silicon dioxide (SiO_2), which makes up 60 per cent of the rocks and minerals of the earth's crust, is the specific cause of silicosis. It exists either in the free state or in combination with certain mineral oxides to form silicates, such as mica, clay and feldspar. Thus far only free silica is known to produce silicotic fibrosis of the lungs. The term free silica usually means quartz, of which there are many varieties. There are other forms of free silica, as shown in table 3.

TABLE 3.—*Forms of Free Silica, Causing Silicosis, Classic and Modified*

- Crystalline (Crystalline structure)
    - Crystobalite
    - Tridymite
    - * Quartz
- Cryptocrystalline (Crystal structure too fine to be easily distinguished)
    - Chalcedony
    - * Flint
    - * Chert
    - Jasper
    - * Tripoli
- Amorphous (Noncrystalline)
    - * Diatomite
    - * Silica Gel
    - * Vitreous Silica
    - Opal

* The compounds marked with an asterisk are those of the greatest industrial importance.

It has not been demonstrated authentically that silicates other than asbestos produce real pulmonary fibrosis. Pulmonary changes due to dusts containing them have been reported, but they probably resulted from small amounts of free silica, which existed as impurities. However, more investigation is necessary before one can make definite assertions about the innocuous character of these silicates.

Industrial pulmonary disease offers a real challenge to the general practitioner as well as the industrial physician. As the family doctor he may be called on to express his opinion as to whether changes observed in the roentgenogram of the chest are caused by occupation or not. Even though he is not directly associated with industry, most manufacturing concerns will welcome his interest and be more than willing to afford an opportunity for visits to the plant so that he can obtain first hand knowledge of actual working conditions. Through such contacts he will find that his appraisal of industrial diseases will be greatly enhanced, and the experience will prove to be fascinating and surprisingly valuable.

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MANAGEMENT OF COMMON OCCUPATIONAL SKIN DISEASES

NELSON PAUL ANDERSON, M.D.
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The general practitioner in considering any patient with a cutaneous disorder of possible occupational nature has many problems to consider. In the first place there is the patient who generally comes to the physician as a private patient, i. e., not having been sent by either the employer or the insurance company. In such a case both the physician and the patient are primarily concerned with the problem of relief, i. e., that of treatment. This will be considered later. In addition to the relief of the patient, the physician should act (1) to prevent as far as possible aggravation or recurrence of the eruption, (2) to hold to a minimum the amount of time lost from work because of the cutaneous condition and (3) to prevent or minimize the occurrence of similar eruptions in other employees who may be similarly exposed.

In the second place there is the employer to be considered. He is not particularly interested in the medical problem except from its economic aspects. Nevertheless, the physician's relations with him should be harmonious because many times the employer will be called on to furnish information and technical data which may be absolutely essential to an intelligent handling of the patient's cutaneous condition.

Finally, there is the medicolegal aspect of the insurance carrier and industrial compensation. The insurance company must be furnished with a correct and etiologic diagnosis if this is at all possible. Such a diagnosis must be established on a scientific basis by a carefully taken history, by the dermatologic observations in any given case and occasionally, but not always, by patch tests. Reasonably accurate information should be furnished as to the temporary and permanent disability, the length of treatment, prognosis as to recurrences and the ability of the patient to resume his regular or ordinary duties.

The physician should be familiar with the compensation laws of the state in which he practices. In most states having such laws the patient is not compensated for the first week's absence from his work. Hence the physician who knows this will not be too quick to advise the worker to stay away from his job unless, of course, it is absolutely necessary. Another point, not generally understood, is that even if the patient's industrially caused eruption has been greatly aggravated by self-applied medication, nevertheless the condition remains compensable.

The importance of occupational dermatitis is revealed by the fact that it accounts for 65 per cent of all occupational disease exclusive of accidents in this country. Further, about 1 per cent of all workers will at some time suffer from an occupational dermatitis, and, finally, the average patient loses ten weeks from work.[1]

"An occupational dermatitis is a pathological condition of the skin for which occupational exposure can

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This paper and the two preceding papers complete the symposium of seven papers on Industrial Medicine read at the annual meeting of the American Medical Association in Chicago, June 23, 1948. The papers by Dr. Leonard Greenburg, Dr. Elston L. Belknap, Dr. William C. Wilentz and Dr. John H. Foulger were published in THE JOURNAL last week.

Read in a Joint Meeting of the Section on General Practice and the Section on Preventive and Industrial Medicine and Public Health at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

1. Schwartz, L.: The Incidence of Occupational Dermatoses and Their Causes in the Basic Industries, J. A. M. A. **111:** 1523 (Oct. 22) 1938.

be shown to be the major causal or contributory factor."[2] The Committee on Industrial Dermatoses which formulated this definition also outlined in somewhat technical language the criteria for the diagnosis of occupational dermatitis.

Not only should these criteria be kept in mind, but they should also be in front of the physician when he takes the history. Such a history is the single most important aid in the correct diagnosis and management of any occupational dermatosis.

The following questions which adequately cover the same criteria from a slightly different angle have been formulated by Lane.[3]

1. Is the site of greatest exposure the site involved at the onset?
2. Is the site of the greatest skin involvement the site of maximum exposure?
3. Have other fellow workers suffered from similar eruptions?
4. Does the suspected causative agent produce eruptions of this type?
5. Is the occupation one in which similar cases have been observed?
6. Is the time relationship between exposure and onset of the eruption correct?
7. Is there any history of outside exposure to other irritants, e. g., as in gardening, hobbies, wearing apparel and cosmetics?
8. Are the cutaneous lesions present consistent with those known to have followed a similar exposure?
9. Is there a definite history of (*a*) the cutaneous eruption occurring after exposure to a suspected agent, (*b*) improvement and clearing of the eruption after cessation of work or transfer to another job where the suspected agent is no longer contacted and (*c*) relapsing of the cutaneous condition shortly after a return to the conditions of original exposure?
10. Are you sure of your diagnosis (patch tests)?

Essentially the same information is elicited in the special forms devised by Hall[4] and by Peck.[5] These can be used in place of the ordinary insurance blanks.

As emphasized by Lane,[3] it must be noted that these criteria do not apply in cases in which (1) considerable time has elapsed between the onset of the eruption and consultation with a physician, (2) the eruption has resulted from overtreatment with too strong medication, (3) the eruption has resulted from the improper or injudicious use of sensitizing medications and (4) there is an aggravation of a preexisting cutaneous disease by industrial contact or exposure.

INDUSTRIES IN WHICH OCCUPATIONAL DERMATITIS IS A PROBLEM

Schwartz[6] has listed the industries in which occupational dermatoses are most prevalent, with the incidence in each (percentage):

Synthetic resin manufacture	7.5
Chemicals and dye manufacture	7.0
Tanneries	3.5
Oil refining	3.3
Candy manufacture	3.0
Fabric dyeing	2.0
Rayon manufacture	2.0
Steel manufacture	1.5
Fur dyeing	1.0
Rubber manufacture	1.0
	1.0
	0.4

However, occupational dermatitis occurs in considerable numbers in persons in the food-handling trades, including housewives and domestic help. In fact, there is practically no industry, occupation, trade or profession in which occupational cutaneous disease is not at times a problem.

PHYSICAL EXAMINATION

The importance of conducting a physical examination of the entire body, including the scalp, feet and oral mucosa, should be noted. In case the eruption is caused by nonindustrial factors, this fact will often be detected by such an examination. In some cases an industrial cause of the eruption will be suspected but there will not appear to be sufficient contact with the offending agent to explain the various sites which are involved. In such cases close questioning of the worker will often explain the localization of the eruption to such sites.

PATCH TESTS

The patch test has been widely publicized almost to the point where, to paraphrase the common saying "he could not see the woods because of the trees," it has become impossible to see an industrial dermatosis because of patch tests. Nevertheless, the technic of the patch test, with its modifications and variations, the indications for patch tests and the value, limitations, dangers, interpretation and medical legal complications have been thoroughly and critically discussed by numerous dermatologists.[7] Patch tests are exceedingly valuable in certain cases, but they must not and need not be used in that great group of occupational dermatoses due to primary irritants. If patch tests are indicated, control studies should be done on the physician or his nurse. This point has not been stressed sufficiently.

Only about one third of the dermatoses occurring in industrial workers will prove to be of occupational origin. It will be comforting to the general practitioner to realize that in about 10 per cent of definite occupational dermatoses an exact etiologic diagnosis may be impossible.

INFECTIOUS ECZEMATOID DERMATITIS

One of the commonest cutaneous conditions occurring in association with occupational injuries is known as infectious eczematoid dermatitis. This condition may develop as a direct complication in a cut, scratch, abrasion, friction burn or other superficial injury of the skin. It is prone to develop in the region of wounds that have been neglected or improperly treated or in the neighborhood of pyogenic infections, such as a furuncle, otitis media or a draining sinus such as may develop following a compound fracture or osteomyelitis. Many times the history of an injury will not be obtained unless the patient is specifically questioned regarding such an injury.

In one group of cases it is the direct result of bacterial sensitization of the skin in the neighborhood of a wound. In the other group of cases it follows the chemical sensitization of the skin by such agents as the mercurials, iodine or sulfonamide drugs. Granulating wounds, such as burns with secondary infection, are especially apt to become sensitized. As pointed out by Sneddon,[8] in such cases the epithelial cells are subjected to closer contact from such external agents than occurs with intact skin. He further noted that the site of the wound was also very important. In localities with deficient blood supply there is less resistance or poorer nutrition of the cells and the healing time is prolonged. Both of these factors favor the development of sensitization and especially so when in addition a chemical agent is applied which possesses decided sensitizing powers. Once the process has started it seems to possess the power of self perpetuation and is definitely autoinoculable, e. g., in scratch marks or at sites of microscopic trauma such as occurs from adhesive tape.

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[2] Lane, C. G., and others: Industrial Dermatoses: Report by Committee on Industrial Dermatoses of Section on Dermatology and Syphilology of the American Medical Association, J. A. M. A. **118:** 613 (Feb. 21) 1942.

[3] Lane, C. G.: Course on Industrial Dermatoses, American Academy of Dermatology and Syphilology, Chicago, Dec. 9, 1947.

[4] Hall, A. F.: Personal communication to the author.

[5] Peck, S. M.: Course on Industrial Dermatoses, American Academy of Dermatology and Syphilology, Chicago, Dec. 9, 1947. Reporting Industrial Dermatitis: Proposing New Form to Properly Evaluate Case, Compensation Med. **1:** 3 (March) 1946.

[6] Schwartz, L.; Tulipan, L., and Peck, S. M.: Occupational Diseases of the Skin, Philadelphia, Lea & Febiger, 1947, p. 28.

[7] Ingraham, N. R., Jr., and Beerman, H.: Some Problems in Dermatologic Allergy, M. Clin. North America **31:** 1518 (Nov.) 1947. Downing, J. G.: Legal Aspects of Patch Tests, Arch. Dermat. & Syph. **44:** 63 (July) 1941. Friedman, R.: Patch Test: Its Use and Abuse, Pennsylvania M. J. **51:** 629 (March) 1948.

[8] Sneddon, I.B. : Some Dermatologic Complications of Open Wounds, Proc. Roy. Soc. Med. **40:** 883 (Dec.) 1947.

The resulting cutaneous picture shows one or more sharply outlined patches, which are often coin sized or larger. These patches are composed of superficial papulovesicules or pustules. These easily rupture and produce a moist raw oozing edematous patch which, because of its annular appearance, is often mistakenly diagnosed as a ringworm or fungous infection. New vesicles and pustules develop peripherally or at a distance, and these patches may combine to form larger areas of dermatitis with a profuse thin serous or seropurulent discharge. Single or grouped crusted or oozing vesicles frequently develop in the neighborhood. Later the lesions may become dry and scaly, but most frequently they remain covered with a dry granular varnish-like exudate which cracks or splits, allowing the exudation of serum. There occur repeated exacerbations and remissions, although subjective symptoms are relatively absent or mild. The condition is exceedingly resistant to therapy.

Cultural studies are negative for fungi, but staphlyococci and/or streptococci are usually isolated on ordinary culture mediums. It should be noted that the dermatitis which is seen following exposure to the chromates in the airplane industry may simulate infectious eczematoid dermatitis both in its morphologic aspects and patchy distribution. This was first pointed out by Hall.[9]

TREATMENT

What Not to Use.—In dealing with an industrial dermatosis, it is probably more important to know what not to use than to know any one particular remedy. Many minor industrial or occupational dermatoses are converted into major ones by either sensitizing or irritating local applications or remedies. Thus one sees irritation and sensitization from such applications as the mercurials. These include ammoniated mercury, tincture of merthiolate, tincture of metaphen and certain proprietary disinfectants or sterilizing solutions. As a matter of fact, most of these so-called mercurial antiseptics, at least when in aqueous solution, are valueless for their supposed antibacterial action, as has been shown recently.[10] One must not forget that tannic acid ointment contains 1 : 5,000 merthiolate as a preservative.

Experiences with the local use of the sulfonamide drugs in the past decade certainly have demonstrated the fact that these drugs, particularly sulfathiazole, are potent sensitizers.[11] They have no place in the routine treatment of cuts, abrasions, infected wounds or burns or pyogenic infections of the skin.[12]

The experiences of most dermatologists with the local use of penicillin have revealed that this antibiotic is a potent sensitizer. It may either cause a severe sensitization dermatitis or aggravate an existing condition without producing a definite dermatitis.[13] What, however, is more important with regard to both penicillin and the sulfonamide drugs is the fact that such locally produced sensitivity frequently leads to a generalized sensitivity. This may be of such a high degree as later to prevent the internal use of these valuable therapeutic agents.

The use of butesin picrate ointment for the relief of burns should be mentioned. There are two potent sensitizing agents combined, the local anesthetic butyn and the picric acid radical. All local anesthetics, including dibucaine hydrochloride (nupercaine hydrochloride®), ethyl aminobenzoate, tetracaine hydrochloride (pontocaine hydrochloride®) and metycaine hydrochloride® · (racemic-3-benzoxy-1-[2-methylpiperidino]-propane hydrochloride), are decided sensitizers, and their use, particularly on wounds and open granulating surfaces, is fraught with far greater danger to the patient than any temporary benefit derived from their local anesthetic effect, which at the best is very fleeting.

Acriflavine and proflavine of the acridine dye group are also so-called first aid drugs, the use of which could be easily dispensed with. Actually acriflavine may touch off a dermititis due to sulfonamide drugs.[14] A combination of proflavine and sulfonamide mixtures is more damaging to tissues than either substance alone.[8]

In addition to these sensitizing agents, it is a good general rule to avoid the use of ointments containing phenol, resorcinol and nitrofurazone. In general, dermatologists agree with Lyons [15] when he says that local chemotherapy of wounds is unnecessary and undesirable.

In this connection I am sure that sensitivity to adhesive tape is commoner than the literature would indicate. Adhesive tape should be used sparingly, if at all, on the skin of persons suffering from (1) polyvalent sensitivities and (2) infectious eczematoid dermatitis or so-called nummular eczema. In the former it is apt to provoke a nonspecific flare, and in the latter condition new patches of nummular eczema are prone to occur in nearby areas of skin which have been irritated by adhesive.

Dyes and Paints: The custom of using various pigments and paints is probably a "hold over" from the ancient days of the "medicine man" and the "witch doctor." The more vivid, violent and striking the hue and color, the more the patient is impressed. The "medicine man," however, had the advantage that most of his pigments were of vegetable origin. In modern times the fashion has been to use iodine, merbromin, merthiolate,® nitromersol, methylrosaniline chloride, bismuth violet® (contains 4 per cent bismuth ammonium citrate and 96 per cent crystal violet), carbolfuchsin, picric acid, brilliant green and similar preparations of variegated colors. In general most of these are organic dyes which, if they do not cause a secondary contact dermatitis, at least succeed in masking the clinical picture. In general if one feels that the patient must have that "new look," then less trouble and more benefit will be obtained by the use of aqueous methylrosaniline chloride in a 1 or 2 per cent solution. Rarely has the use of methylrosaniline chloride been followed by the development of permanent discoloration of the skin, which is of the nature of a "traumatic tattoo."[16]

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[9] Hall, A. F.: Occupational Contact Dermatitis Among Aircraft Workers, J. A. M. A. **125:** 179 (May 20) 1944.

[10] Morton, H. E.; North, L. L., Jr., and Engley, F. B., Jr.: The Bacteriostatic and Bactericidal Actions of Some Mercurial Compounds on Hemolytic Streptococci, J. A. M. A. **136:** 37 (Jan. 3) 1948.

[11] Pillsbury, D. M.: The Management of Bacterial Infections of the Skin, J. A. M. A. **132:** 692 (Nov. 23) 1946.

[12] Sulfonamides for Local Application Deleted from N. N. R., Report of the Council on Pharmacy and Chemistry, J. A. M. A. **135:** 157 (Sept. 27) 1947.

[13] Wright, C. S., and Gross, E. R.: Topical Treatment with Penicillin Ointment, Arch. Dermat. & Syph. **55:** 52 (Jan.) 1947.

[14] Beare, J. M.: Generalized Skin Sensitivity Following Local Application of Acriflavine, Lancet **1:** 410 (March 29) 1947.

[15] Lyons, C.: Chemotherapy in the Management of Wounds, J. A. M. A. **133:** 215 (Jan. 25) 1947.

[16] Sutton, R. L., Jr.: Gentian Violet as a Therapeutic Agent With Notes on a Case of Gentian Violet Tattoo, J. A. M. A. **110:** 1733 (May 21) 1938.

ULTRAVIOLET RAYS

Many physicians employ ultraviolet rays in the management of dermatoses of an undeniable occupational nature. Without commenting on its value, I should like to state that, if one must use ultraviolet rays, many complications and untoward effects may be avoided by always employing suberythema doses.

COOPERATION WITH PLANT ENGINEER AND PERSONNEL DEPARTMENTS

The plant or safety engineer can frequently be of great help in the placing of adequate exhaust systems in situations where noxious dusts or fumes are a factor, as in electroplating, or in the modification of certain industrial processes, such as the addition of gelatin to sulfate baths when the latter are used as a substitute for cyanide baths.[17] In some chromium plating operatons it is estimated that from five to ten times the amount of chromium converted into chromium plate was lost in the spray or mist over and about the plating tank. The use of a floating or surface application of plastic chips has reduced the concentration of chromic acid in the air by one hundred fold.[18] In small plants without a safety engineer, such a service can be secured from the insurance carrier.

There is no doubt that in industries with a high incidence of occupational dermatitis, a carefully taken preemployment history and examination would do a great deal from a preventive point of view.

PROPHYLACTIC

The use of impervious gloves, gauntlets, masks and other protective garments has been adequately stressed by Schwartz. In any special problem of protection the tremendous wealth of experience and knowledge of the Dermatoses Investigation of the United States Public Health Service, under the supervision of Dr. Paul C. Campbell Jr., is open to all simply for the asking. Dermatologists frequently take advantage of the special knowledge which this agency possesses. There is no reason why the general practitioner should be hesitant in asking for aid in any special problem.

The use of mild soaps, detergents and cleansing agents will do much to eliminate a prolific source of cutaneous irritation. On the other hand, the use of harsh gritty soaps and cleansing agents or turpentine, paint thinners and degreasing solutions should be condemned.

In instances where industrial dermatitis reaches epidemic proportions the plant should be visited personally by the physician along with the safety engineer. Usually in such instances there are two chief factors. First, the workers are in excessive contact with definite irritating or sensitizing materials. Secondly, the washroom facilities are generally inadequate, with no hot water, soap or towels. If the doctor fails to secure adequate washing facilities, either the insurance carrier or the labor union may secure appropriate action.

Protective creams, lotions, films or greases undoubtedly have some value. There are a great many of them on the market, and certain of them may be of value in certain occupations. In general, however, ordinary wool fat is about the best as an all-purpose protection cream. In fact, as so aptly stated by Schwartz, " . . . the chief value of a protective cream is that it practically forces the worker to wash it off."

ACTIVE TREATMENT

It is practical in cases of acute and more or less generalized dermatitis, in which there is often involvement of the face and neck, ears, eyelids, genitalia, hands, forearms and feet, for the physician to warn the patient that his eruption is "going to get worse before it gets better." All doctors have seen examples of this in the early stages of poison ivy or poison oak dermatitis. In so warning the patient one convinces him that one knows what the course of his eruption will be and so retains his confidence.

All experienced dermatologists will agree that most cases of industrial or occupational dermatitis are overtreated, sometimes by the physicians, but more often by the patient in the use of proprietary remedies advocated by some well meaning friend or druggist. The solution is obvious. In acute dermatoses, regardless of the cause, the physician will do well to confine his local topical remedies to those which are soothing or at least innocuous. To paraphrase a statement by Crawford, occupational cutaneous diseases, like people, respond best if treated gently.[19] These remedies are in general solutions rather than salves or ointments, and as representative examples the following solutions suitable for wet dressings may be mentioned. In fact, on a violently red moist weeping oozing skin, nothing else should be applied.

(*a*) Aluminum acetate solution (Burrow's solution) diluted with 12 to 16 parts of water
(*b*) Plain milk (cold) 4 parts, lime water 1 part
(*c*) Boric acid, 2 to 4 per cent (warning: take care, do not use over extensive areas either in solution or ointment form)
(*d*) Magnesium sulfate (saturated)
(*e*) Sodium chloride solution, 0.9 per cent
(*f*) Starch solutions (boiled)
(*g*) Weak sodium bicarbonate (baking soda) solutions

In general wet dressings should not be used on over one third of the body surface. They should be changed frequently, i. e., every two to three hours, so that the strength of the solution is not increased by evaporation. The use of an impermeable covering, such as wax paper or oiled silk, is optional.

In subacute and chronic stages, when there is dryness, scaling, thickening and fissuring, various ointments and oily preparations are indicated.

These include such preparations as "1-2-3" ointment modified as follows:

Liq. aluminum acetate	5.0
Distilled water	5.0
Wool fat	20.0
Lassars' paste *	30.0

* Lassars' paste is composed of starch 7.5, zinc oxide 7.5 and white petrolatum 15.0.

For extensive areas and in warm weather oily shake lotions are to be preferred.

Ormsby's bismuth cream lotion:	
Bismuth subnitrate	4.0
Zinc oxide	8.0
Olive oil and lime water—equal parts to make	240.0
Apply locally several times daily.	
Rosen's emulsion burrowi:	
Wool fat anhydrous	30.0
Olive oil (pure)	120.0
Heat in mortar and mix well	
Add zinc oxide	30.0
Talc	30.0
and mix well	
Add aluminum acetate solution (1, 2 or 3%)	3.0 to 9.0
and mix well	
Add lime water (fresh) to make	300.0
Apply locally several times daily.	

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[17] Skin Irritations from Cyanide in Cadmium Plating, Queries and Minor Notes, J. A. M. A. **130:** 313 (Feb. 2) 1946.

[18] Molos, J. E.: Use of Plastic Chips in the Controls of Chromic Acid Mist, Indust. Med. **16:** 404 (Aug.) 1947.

[19] Crawford, S., in discussion on Cohen, M. H.: Mistreatment of Common Skin Diseases, Pennsylvania M. J. **51:** 870 (May)) 1948.

TREATMENT OF SECONDARY PYODERMAS

In instances where secondary infection is present, the following preparation (alibour water) may be used as continuous wet compresses. This is very useful, effective and practically without any danger of causing a sensitization dermatitis.

Copper sulfate	1.6
Zinc sulfate	5.6
Saturated camphor water to make	240.0

Dilute 2 tablespoonfuls to a glass of tap water and apply as a continuous moist dressing.

This preparation may be used anywhere on the body, including the eyelids and genitalia. The mild green discoloration which is deposited on the skin is a valuable index or guide as to whether the patient is actually using the solution.

Another useful wet dressing in treating secondary pyogenic infections is 0.25 to 0.5 per cent aqueous solution of silver nitrate. The black stains which result are somewhat disfiguring, although only temporary, but do make one hesitate to use this preparation on exposed surfaces.

The staining qualities of potassium permanganate in 1 : 5,000 or 1 : 10,000 aqueous solution are such that many dermatologists do not use this otherwise valuable remedy.

Tyrothricin [20] is one antibiotic the local use of which has not resulted in sensitization dermatitis. It is applied either in the form of wet compresses in a strength of 0.25 to 0.5 per cent or in a vehicle favoring penetration, as in intraderm® tyrothricin solution (solution containing 0.1 per cent tyrothricin [gramicidin fraction not less than 20 per cent] in a vehicle of water 89 per cent, propylene glycol 10 per cent and an alkyl aryl sodium sulfate 1 per cent).[21]

Bacitracin, also a newer antibiotic, has been used locally in the treatment of the pyodermas with encouraging results, and so far there have been very few reports of sensitization following its use.[22]

SUMMARY

Some general aspects of occupational skin diseases are considered. An outline of simple and effective treatment for occupational dermatoses and some of its complications is presented.

2007 Wilshire Boulevard.

PANEL DISCUSSION

ON PAPERS BY DRS. LEONARD GREENBURG, ELSTON L. BELKNAP, WILLIAM C. WILENTZ, JOHN H. FOULGER, REX H. WILSON, L. E. HAMLIN AND NELSON P. ANDERSON

Dr. L. T. Fairhall, Milwaukee: For several years the diagnosis of lead poisoning has been encumbered with an aura of mysticism which, while it must have discouraged some, has encouraged others to surround it with even greater difficulties. There is no single quantitative factor leading to the immediate diagnosis of lead poisoning. It is true that various criteria have been proposed which have been thought to be sufficient to make a clearcut diagnosis. However, as these criteria have been examined, they have been found to be incomplete, and, instead, the true diagnosis of lead poisoning has involved the summation and integration of a number of factors. For instance, the value of porphyrin excretion or blood porphyrin has been broached by investigators at various times as an indisputable index of lead poisoning but has been found by other investigators to be variable or without significance in true lead poisoning. With reference to the urinary excretion of lead, an increased output has, as Dr. Belknap has stated, significance only of lead absorption; of itself, it indicates only passage through or removal from the body without in any way implicating damage to the human organism; however, it is significant and helpful as an indication of pronounced absorption of lead. It is fortunate in this regard that the quantity of lead in the urine, which is of significance to the diagnostician, lies within values which lend themselves to convenient determination in the laboratory. In other words, the order of magnitude of urinary lead lies within the range of relatively significant fractions of a milligram per liter and not within the range of micrograms per liter. One factor on which Dr. Belknap places weight is basophilic stippling. While this has been accepted as one of the definite criteria of lead poisoning, it has been a sort of diagnostic football and has been kicked about more than it deserves. In spite of the fact that a few stipple cells occasionally appear in the blood stream of normal persons, and the further fact that stippling has been shown to occur in certain diseases and intoxications, Belknap, in his long study of lead poisoning and persons exposed to lead, has succeeded in placing this criterion of lead poisoning on a firm basis. The test or yardstick by which the efficacy of this means of diagnosis may be measured is indicated by the experience which he cited, namely, that the incidence of disabling lead poisoning promptly fell from 20 per cent to 0 per cent in a single lead storage battery plant and that by such medical control he has been able to keep these employees free from disabling lead poisoning for eleven years.

Dr. R. T. Johnstone, Los Angeles: Dr. Belknap, how many red blood cells on the average are represented by 50 fields, as blood smears are studied by you?

Dr. E. L. Belknap, Milwaukee: About 10,000 red blood cells per 50 fields. The number of red cells per oil immersion field is about 200; thus, in 50 such fields, about 10,000 cells are counted. To gain the corresponding number of stippled cells per million red cells one would simply multiply the factor by 100. Of course, one should realize that is a rather rough index, because the number of red cells vary even in the normal person.

Dr. Johnstone: Dr. Wilentz, what do you recommend regarding the use of blood transfusion of whole blood in acute lead poisoning?

Dr. W. C. Wilentz, Perth Amboy, N. J.: I do not object to using it if I think the patient is that sick.

Dr. Johnstone: I do not believe that there are many cases of intoxication so severe that one need use it in advance.

Dr. Wilentz: I have never found it necessary.

Dr. John H. Foulger, Wilmington, Del.: Nor I.

Dr. Johnstone: Dr. Foulger, do the solvents you discussed produce menstrual disorders?

Dr. Foulger: I know of no evidence that the solvents discussed produce menstrual disorders. In fact, I am inclined to think that very few chemicals, if any, as used in industry, interfere with menstruation. During the war, my co-workers and I studied numbers of women exposed to very active chemicals and found no such effects.

Dr. Johnstone: Dr. Wilson, what is the usual time in acute carbon tetrachloride poisoning before nephrosis or hepatitis develops?

Dr. R. H. Wilson, Akron, Ohio: The process of nephrosis or hepatitis probably starts very soon after the beginning of exposure. Manifestations of nephrosis or hepatitis probably occur in six to twenty-four hours in acute poisoning.

Dr. Johnstone: Would you say, Dr. Wilson, that where there are signs of some intoxication present, actual observations

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22. Meleney, F. L., and Johnson, B.: Bacitracin Therapy: The First Hundred Cases of Surgical Infections Treated Locally with the Antibiotic, J. A. M. A. **133:** 675 (March 8) 1947. Miller, J. L.: Comparison of Bacitracin with Other Remedies for Local Pyogenic Infections, read before the Section on Dermatology and Syphilology, at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

acute nephrosis or uremia will be evident in a week or ten days?

DR. WILSON: That is correct.

DR. JOHNSTONE: Dr. Wilson, one speaker included parkinsonian symptoms among the conditions due to industrial poisoning by carbon disulfide. Is the evidence clear on this point?

DR. WILSON: No.

DR. JOHNSTONE: Dr. Greenburg, do the industrial doctors have evidence that absorption of mercury could cause parkinsonian disease, for example, in a man who works for years treating grain for a seed company?

DR. LEONARD GREENBURG, New York: I have seen men in whom tremor has developed. Undoubtedly this will be true in certain cases. That is evident if one examines the handwriting. Psychic disorders also develop, but there is no reason to confuse that with straight parkinsonian syndrome, not related to occupation.

DR. JOHNSTONE: Is there any substantial evidence, Dr. Wilson, that delayed leukemia may result years after benzol intoxication?

DR. WILSON: Not in my experience. The acute benzol intoxication is usually manifested, as far as blood changes are concerned, immediately. I have never seen a case of late acute leukemia. It may develop in chronic conditions.

DR. JOHNSTONE: Dr. Wilentz, is hospitalization necessary in the treatment of lead intoxication?

DR. WILENTZ: I do not know a better place to receive treatment or a place where one can get better so quickly. Some men do not like it. I am sure that intensive therapy at the hospital will shorten disability. It is important that intravenous calcium therapy be given around the clock, and I know of no other place where this can be accomplished except in a hospital.

DR. JOHNSTONE: There is one question turned in which I cannot quite understand: What are the autopsy observations (I suppose) of encephalitis following lead poisoning?

DR. BELKNAP: Deaths due to lead poisoning are extremely rare in adults. There have been very few cases of encephalopathy due to lead in modern industry since the lead hazard in the ethyl gas industry was controlled entirely on the basis of engineering protective devices. However, men did die in that industry and studies have been made and reported. That is primarily a pathologic problem.

DR. JOHNSTONE: Dr. Sander, how can one accurately determine the nature of a dust, such as the difference between iron dust and silica? I suppose that the questioner had in mind determining the nature of the dust in the plant and then analyzing the collected dust by roentgen diffraction.

DR. SANDER: Chemical analysis, petrography and animal experimentation, in addition to the roentgen diffraction analysis, are the methods used to differentiate free silica from other dusts. Animal experimentation is especially useful when the silica content of a dust is known to be low. As Dr. Hamlin has said, he has had experimentation under way at the Saranac Laboratory for three years to determine whether the dust from grinding cleaned steel castings contains enough free silica to cause silicotic nodulation. The animals studied so far show no evidence of silicosis, but do show inert iron deposits in the lungs without any fibrotic reaction.

DR. JOHNSTONE: Dr. Hamlin, what is the incidence of pneumonia in the dusty trades?

DR. L. E. HAMLIN, Chicago: The incidence of pneumonia in my experience has been very low. In the old days pneumonia was a problem in the foundry industry, but with improved working conditions and better hygienic surroundings, there is very little today. In the mining industry in Upper Michigan, where I practiced for ten years, silicosis was common. Nodulation was extensive; yet, the incidence of pneumonia was extremely low. In fact, some of us felt that fibrosis was a factor as far as limiting the spread of pneumonia was concerned.

DR. JOHNSTONE: Dr. Sander, what is "welder's lung?"

DR. OSCAR A. SANDER, Milwaukee: When welders are exposed to excessive concentrations of fumes in confined and unventilated areas, roentgen changes of the lungs may develop after more than five years which somewhat resemble the change in silicosis. The stippled or pseudonodular pattern is due to inert deposits of iron oxide particles in the lymphatic vessels surrounding blood vessels. An important differential point between this benign pneumoconiosis and silicosis is that the root lymph nodes are not enlarged in the former as they are in the latter.

DR. JOHNSTONE: This question is directed to Dr. Belknap, by Dr. J. S. Alley of Midvale, Utah: How soon will stippling occur after massive exposure to concentrated lead fumes? Will other acute symptoms develop first?

DR. BELKNAP: Where lead exposure is massive enough to produce symptoms in a few hours, as with tetraethyl gas exposure, stippled cells do not appear as rapidly as symptoms. I have not had that type of exposure closely under my observation, but I would assume that it would take at least two or three days for stippled cells to develop. I did see this in a maintenance man exposed to lead fumes caused by using a welding torch on an oven where there had been much contaminating lead oxide. He showed a lead line of the gums and stippled cells within a week. However, he did not have enough massive exposure to have any disability. I have also seen men cutting lead-painted steel and those who metallized metal with lead-wire and blow torches, show many stippled cells coincident with symptoms arising within ten days after beginning lead exposure.

DR. JOHNSTONE: Dr. Hamlin, what type of treatment exists for the patient with chronic pulmonary fibrosis?

DR. HAMLIN: There is no definitely established treatment. Once pulmonary fibrosis has developed it is permanent. A worker with this condition should be removed from further harmful exposure. Aluminum therapy has been advocated and is now being used in a number of industries here and abroad. I have had no personal experience with it, but the status of it at this time seems to be that, while it does appear to prevent further progression of fibrosis, its value as a specific form of treatment has not been proved conclusively.

DR. JOHNSTONE: Are benzene fumes a causative factor in pulmonary neoplasms?

DR. WILSON: Not that I know of.

DR. JOHNSTONE: I do not believe that there is any evidence of that effect as yet.

Copper as a Snail Killer.—Copper has long occupied a unique position as a molluscicide. Its toxic action against freshwater snails and green algae, together with its comparative harmlessness to higher vertebrates and phanerogamic vegetation, have, when considered in conjunction with its relative inexpensiveness, made it the most favoured agent for snail-control campaigns.

A voluminous literature has appeared on the efficacy of various copper preparations — of which copper sulphate is the most popular—when tested against snails both in vitro and in the field, and large-scale snail-destruction campaigns, sometimes combining the use of copper with periodic drying, have been carried out in Egypt, Southern Rhodesia and elsewhere, as part of bilharzia-control schemes.

Khalil (1932) has given a detailed account, based on an extensive series of experiments in Egypt, of the value and limitations of copper as a snail-killer, and the developments in its use, which have been going on since Leiper's classical researches, are described in numerous publications by Barlow and Abdel Azim and others, who have established the real value of 5 parts per million of copper sulphate as a means of control in the field.—S. G. Cowper, Effect of Certain Inorganic and Vegetable Substances on the English Pond Snail Planorbis Corneus (Linné, 1758), *Annals of Tropical Medicine and Parasitology*, September 1948.

TREATMENT OF ALCOHOLISM WITH TETRAETHYLTHIURAM DISULFIDE (Antabus®)

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During some experiments performed with tetraethylthiuram disulfide (antabus®) in the laboratory, Dr. Jens Hald and one of us (E. J.) discovered that persons who have ingested this substance showed symptoms after consumption of alcohol which differed quantitatively and qualitatively from the common picture of alcoholic intoxication. The discomfort after alcohol consumption in persons treated with tetraethylthiuram disulfide was so intense that we decided to submit this drug to trial as a remedy for alcoholism. The clinical experiments were conducted by one of us (O. M.-L.). The present report includes a short review of the results obtained in the investigations on the biochemical mechanism of this effect and of the clinical results on 100 persons with alcoholism who were treated for six to twelve months.

PHARMACOLOGIC CONSIDERATIONS

Tetraethylthiuram disulfide is a white, or slightly yellow, powder which is insoluble in water. It is relatively nontoxic. The fatal dose is 2 to 3 Gm. per kilogram of body weight for puppies and rabbits.[1] The fatal symptoms are a gradual depression with ataxia and decreased respiration and pulse.[1a] Biopsy shows congestion of the lungs, advanced degenerative changes in the kidney and somewhat less intensive changes in the liver. The cellulosity of the bone marrow is greatly reduced.[1b]

Rats were given 1 mg. daily and rabbits 60 mg. daily for ten months without any influence on growth, body weight, appearance or blood picture.[2]

In man, no effect was observed after single doses of 3 Gm., or after doses of 0.25 to 1 Gm. taken daily for months. After such doses, no subjective or objective effects were noticed in most persons. Exceptions are mentioned later under after-effects. Elimination from the body is slow. In man the effect of 1.5 Gm. can be traced seven to eight days after ingestion, and the effect after a single dose in rabbits persists for seventy-six to ninety hours. No antabus® is excreted in the urine.

When a human subject has taken antabus® (e. g., 1 Gm.) twelve hours previously, the intake of alcohol results in the following symptoms: After five to fifteen minutes the person has a feeling of heat in the face. A few minutes later an intense vasodilatation is observed in the face and neck, making the whole area purple-red. Some patients even show vasodilatation on the upper part of the chest and the arms. Characteristic is the vasodilatation in the scleras. Slight edema in the loose connective tissue under the lower eyelids is also typical. The vasodilatation in the face is accompanied with a decided increase in skin temperature in this area.[3] The pulse rate is increased to 120 to 140. The blood pressure is unaltered or slightly depressed. The cardiac output is increased about 50 per cent in resting persons and only slightly (5 to 15 per cent) in persons doing moderate muscular work. The ventilation is increased, with a corresponding decrease in alveolar carbon dioxide.[4] The effect on the respiration and the pulse rate is eliminated during inhalation of pure oxygen. This suggests that the symptoms are due to a stimulation of the chemoreceptors in the carotid sinus. The volume of the respiratory dead space is increased or unaltered.

Sometimes nausea begins thirty to sixty minutes after consumption of alcohol. In such cases the intense flushing disappears and is replaced by facial pallor and a considerable fall in systolic and diastolic blood pressure. Copious vomiting may occur. Occasionally, the vomiting may begin suddenly with no, or a very short, nausea stage. Higher doses of alcohol, in some patients, result in dizziness, and a few times a patient has been unconscious for as much as a half-hour.

No other objective symptoms are observed. These symptoms are generally accompanied with an intense feeling of discomfort to the patient, who has a pulsating headache, palpitations and subjective dyspnea. In most cases, the patient notes a constrictive feeling in the neck, as though "the collar has become too tight." To this can be added a feeling of a "premature hang-over," which is difficult to describe, but which is highly disagreeable. In summary, the discomfort is so intense that, once experienced, it prevents an overwhelming majority of patients from further attempts to take alcohol as long as they are influenced by antabus.®

After moderate doses of the drug, the combustion rate of alcohol in man is the same whether or not the person has taken antabus.®[2] The same is seen in rabbits after moderate doses,[5] but, after ingestion of large doses of antabus,® the combustion rate can be considerably decreased. It is still unknown whether heavy doses, even in man, result in a similar decrease in the rate of elimination.

More important is the fact that the blood acetaldehyde level is increased after treatment with antabus® and subsequent consumption of alcohol to a concentration five to ten times higher than that seen when the same doses of alcohol are given to untreated persons.[6] Acetaldehyde is also excreted through the lungs and gives the expired air the intense, characteristic smell of the substance. When acetaldehyde is infused intravenously at such a rate that the concentration in the blood is kept on a level corresponding to that seen after the administration of antabus® plus alcohol, the same symptoms are seen in the same intensity.[7] Even here, the effect on ventilation and alveolar carbon dioxide is abolished after inhalation of pure oxygen. There can be little doubt that the clinical effect of alcohol after ingestion of antabus® is due to an increased

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Dr. Jacobsen contributed the theoretic portions and Dr. Martensen-Larsen the clinical portions of the paper.

From the Biological Laboratories, Medicinalco Ltd., and Flakvad Sanatorium for Alcoholics, Rungsted Kyst, Denmark.

In the United States the rights for the distribution of antabus® have been assigned to Ayerst, McKenna & Harrison Limited, under whose auspices clinical investigation of the drug is now being conducted in this country.

[1] (*a*) Hanzlik, P. J., and Irvine, A.: Toxicity of Some Thioureas and Thiuramdisulphides, J. Pharm. & Exper. Therap. **17**: 349, 1921. (*b*) Brieger, H., and Hodes, W. A.: Toxicity of Dithiocarbamates, read before the Ninth International Congress of Industrial Medicine, London, 1948.

[2] Hald, J.; Jacobsen, E., and Larsen, V.: Sensitizing Effect of Tetraethylthiuramdisulphide (Antabuse) to Ethyl Alcohol, Acta pharmacol. et toxicol. **4**: 285 (Dec.) 1948.

[3] (*a*) Hald and others.[2] (*b*) Hald, J., and Jacobsen, E.: A Drug Sensitizing the Organism to Ethyl Alcohol, Lancet **2**: 1001 (Dec. 25) 1948.

[4] Asmussen, E.; Hald, J.; Jacobsen, E., and Jørgensen, G.: Studies on the Effect of Tetraethylthiuramdisulphide (Antabuse) and Alcohol on Respiration and Circulation in Normal Human Subjects, Acta pharmacol. et toxicol. **4**: 297 (Dec.) 1948.

[5] Larsen, V.: Effect of Antabuse in Combination with Alcohol in Experimental Animals, Acta pharmacol. et toxicol. **4**: 321 (Dec.) 1948.

[6] Hald, J., and Jacobsen, E.: Formation of Acetaldehyde in the Organism After Ingestion of Antabuse and Alcohol, Acta pharmacol. et toxicol. **4**: 305 (Dec.) 1948. Hald and Jacobsen.[3b] Larsen.[5]

[7] Asmussen, E.; Hald, J., and Larsen, V.: The Pharmacological Action of Acetaldehyde on the Human Organism, Acta pharmacol. et toxicol. **4**: 311 (Dec.) 1948.

concentration of acetaldehyde, which is formed by some unknown reaction of antabus® on the enzymes oxidizing alcohol in the organism.

The symptoms are seen after the ingestion of any alcoholic beverages and also after the taking of pure ethyl alcohol diluted with distilled water. The increase in skin temperature is seen when the blood alcohol is increased as little as 5 to 10 mg. per hundred cubic centimeters. The symptoms are fully developed at a concentration of 50 to 100 mg.; unconsciousness results at 125 to 150 mg. Some persons, especially heavy drinkers, at the first test seem to tolerate a rather high percentage of alcohol in the blood. By continued use of antabus,® the tolerance in most persons is considerably decreased. The effect persists as long as the alcohol remains in the blood (generally one to one and one-half hours for each average-sized drink taken). When the symptoms begin to fade, most patients feel exhausted and sleepy. After a few hours' sleep, they are completely recovered.

The hypersensitivity to alcohol generally begins three to four hours after the ingestion of a single dose of antabus® and is fully developed during the next twenty-four hours. Experiments with rabbits show that acetaldehyde formation increases with increasing concentrations of alcohol in the blood and with increasing doses of antabus,® up to a certain dose. The saturation dose of the drug in rabbits is 0.3 Gm. per kilogram of body weight. It is still uncertain whether a similar saturation dose is obtained in man. These observations are valid even for human beings, since increasing doses of both antabus® and alcohol increase the clinical effect.

CLINICAL EFFECT

All persons with alcoholism who have consulted us since December 1947 were treated with antabus.® Up to December 1948 the total number of patients was 550. The results for a small number have already been described.[8]

The first patients were treated on consultation. Later, it was found advisable to take those with the severer conditions, or those for whom alcoholism had caused an acute crisis in the home or family, into the sanatorium. The visit there has been short (from one to three weeks), since it is best to continue treatment in the patient's usual environment as soon as possible. Patients taken into clinics are treated in open wards and are allowed to pay short visits to their offices and homes. It is important for rapid mental and social restoration to bring patients back into their ordinary lives as soon as possible, so that they may learn to live nonalcoholic lives among normal drinkers.

The dosage varied during the period of experimentation. At the beginning, treatment was begun cautiously, with small doses which were increased with time since no severe after-effects occurred. In the material presented here, the treatment has been as follows: On the first day, 1 to 2 Gm. of antabus® was given; on the next two days, 0.75 to 1 Gm. Thereafter, 0.06 to 0.75 Gm. was administered daily. As will be stated later, some of these doses were too small. For this reason, we increased the initial dose to 2 Gm. the first day and 0.75 to 1 Gm. the following two days. The dose depends on the individual person and is adjusted so that flushing occurs after 5 Gm. of alcohol (one third to one half of a drink) is ingested. This dose lies generally between 0.25 and 0.75 Gm. daily. In most cases, the patients were given a "test drink" on the third day of treatment to experience the effect of alcohol. The patient was asked to drink as he was accustomed to, with the usual interval between the drinks, until he was forced to stop. As a rule, this point was reached after two and one-half to four and one-half drinks. The last half drink generally remained untouched. The test drinking was usually under observation. However, some patients feel tempted to drink in a bar, with instructive results.

The patients were followed with regular examination of the blood (red and white blood cell counts and hemoglobin determinations), tests on urinary albumin, bile pigments (and urobilin) and hepatic function (thymol turbidity test) and electrocardiograms. No pathologic changes have been observed. About 20 per cent of the patients (18 of the first 100) complained of tiredness, which persisted one or two months but disappeared during continued treatment. It was necessary to stop medication for this reason in only 1 patient. A few patients noted decreased sexual potency, but this complaint was also transient. Generally, the drug exerted a calming influence on the patient which was not at all undesirable. In 15 per cent of the patients (12 of the first 100) sleep was considerably improved, so that the use of sedatives was unnecessary.

No other after-effects were seen in the material here studied, or in the 550 patients under our control. Since September or October 1948 antabus® has been widely used in Denmark, Sweden, Iceland and Finland (on several thousand patients). A few other untoward after-effects have been noted and reported to us. One or two patients have shown a slight allergic cutaneous reaction, which disappeared readily after medication was discontinued. In 2 or 3 patients, a manic state developed during the first weeks of treatment. In these instances, it seemed as though the manic state was preceded by a feeling of dizziness and restlessness. The doses in these patients were comparatively high. They were hospitalized and, after discontinuation of the medication, the psychiatric symptoms faded within a few days.

The reaction after alcohol consumption may in some persons be either too severe or too slight. Severe reactions are generally seen after large doses of alcohol and can be rather alarming to the patient and his relatives. The following case was described by Linden.[9]

> After doses of antabus® of 1.5 to 1 Gm. and a moderate amount of alcohol, a 56 year old man fainted and had convulsions. He was cyanotic and appeared to be dying. The electrocardiogram showed an auricular flutter with 2:1 auriculoventricular block. He was given strophanthin as a stimulant and treated with oxygen. He began to recover after a half hour and was completely recovered in two hours. The heart function was normal the next morning.

Convulsions are seen in a few patients and are probably due to intense hyperventilation. The treatment for these patients is inhalation of carbogen® (95 per cent oxygen and 5 per cent carbon dioxide) and stimulation of the heart. In case of restlessness, moderate doses of quick-acting barbiturates may be of value.

Too slight reactions are also seen. A few patients flush and have palpitations or perhaps vomit after a few drinks. If they continue to drink beyond this point, their uneasiness suddenly disappears and they can continue drinking without any ill effects. This happens especially when the dosage is too small. It was seen after doses of 0.25 Gm. daily and in 1 patient after 0.5 Gm. daily in connection with diarrhea.

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[8] Martensen-Larsen, O.: New Lines in Treatment of Alcoholics, Ugesk. f. læger, **110**:1207 (Oct.) 1948; Treatment of Alcoholism with a Sensitizing Drug, Lancet **2**: 1004 (Dec. 25) 1948.

[9] Linden, L.: Complications with Antabuse, Svenska läk-tidning. **45**: 1469 (Dec.) 1948.

When the medication is started during a period of heavy drinking, the uneasiness may be noted by the patient to a minor degree, and he will not discontinue drinking until after a few days' treatment. Three patients in the present material continued drinking at the beginning of treatment for one to two weeks in decreasing doses in spite of medication. One of these patients was socially recovered after nine months of observation and had no relapses. The other 2 were regarded as much better after an observation period of six months.

Table 1.—*Results in Persons with Alcoholism After Six Months of Treatment with Antabus®*

	Socially Re- covered	Much Better	Some- what Better	Un- changed	Total
Habitual drinkers	21	6	4	7	38
Weekly drinkers	7	4	5	4	20
Periodic drinkers	24	9	3	5	41
	—	—	—	—	—
Total	52	19	12	16	99
Medication					
Takes tablets daily by himself	14	2	1	0	
Takes tablets daily, but must be reminded	6	5	0	1	
Takes tablets daily, but must be reminded energetically	1	1	0	0	
Takes tablets occasionally	11	9	8	1	
Takes no medication	20	2	3	14	
Attitude of relatives					
Good understanding and active cooperation	33	10	1	2	
Home conditions favorable, but relatives neutral or ignorant of treatment	7	5	1	2	
Relatives unintelligent or unable to comprehend the idea of the treatment	3	2	4	3	
Abnormal family or home conditions	9	2	6	9	

In 1 case, antabus® was given to a 60 year old man (not included in this material) in the middle of a heavy drinking period. He apparently tried to conquer his uneasiness by drinking enormous quantities. He finally became unconscious and was brought to the hospital. Twenty hours after he had stopped drinking, his blood alcohol level was still 140 mg. per hundred cubic centimeters (blood acetaldehyde measured 1.3 mg.), and eight hours later his blood alcohol was 40 mg. (blood acetaldehyde was 0.3 mg.). The next day, he collapsed and died. This experience shows that it is inadvisable to treat such patients as outpatients. They require hospitalization, and medication should not begin until all alcohol has disappeared from the body.

Table 2.—*Effect on Various Groups of Patients with Alcoholism After Six Months of Treatment with Antabus®*

	Socially Re- covered	Much Better	Some- what Better	Un- changed	Total
I. Patients treated earlier without effect *	23	10	8	9	50†
II. Patients previously fined or jailed because of law violation in connection with alcoholism ‡	19	7	4	7	35§
III. Other patients	21	7	4	4	36

* Twenty-one patients received aversion treatment; 4 were treated by the aversion method and suggestion, and 25 were under hospital care or internment.

† Twenty-four of these patients also belong to group II.

‡ Seventeen were convicted of drunkenness in public places; 5 of theft, 12 of driving while drunk, 2 of fraud and 5 of disorderly conduct, while 5 patients had committed several offenses.

§ Twenty-four of these patients also belong to group I.

No absolute contraindications have been seen thus far. The referred Swedish case indicates that some caution is necessary in persons with heart failure. Among our patients, we have several with cirrhosis, arteriosclerosis, diabetes or stomach ulcers. The treatment has not had any vicious effect on any of them. The intensity of the reaction is not diminished as a result of continued treatment, as often occurs in the Voegtlin or the suggestive treatment. On the contrary, the reaction increases during medication or when it is begun again after a lapse of time.

PSYCHIATRIC APPROACH

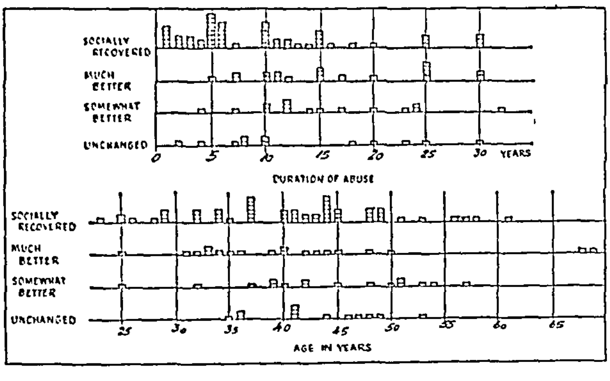
Besides the medical treatment (which effectively stops the alcohol consumption), the patients have been submitted to intensive psychotherapy, aimed at mental and social rehabilitation. With modifications introduced by a drug which effectively prevents the patients from drinking, the psychotherapeutic methods do not deviate in principle from those hitherto used. Therefore, only a few points will be mentioned which have proved to be of special importance to the treatment. As can be seen from table 1, a regular intake of the tablets is essential for successful treatment. Therefore, the first effort is to accustom the patient to take his medicament regularly. Here a member of the patient's household, preferably his wife, can be of much help in making the patient feel that the intake of the tablets is a routine procedure in his daily life. The tablets can be presented at the breakfast table quite as naturally as the coffee and the morning paper. The physician must see the patient at regular intervals, and the next interview must be set every time. If the patient breaks the appointment, the physician must call him and ask the reason.

Table 3.—*Patients with Alcoholism Who Were Treated with Antabus® Grouped According to Psychiatric Symptoms*

	No. of Patients
Patients with pronounced mental symptoms	
Socially recovered	5
Much better	1
Somewhat better	1
Unchanged	6
	—
Total	13
Patients with slight mental symptoms	
Socially recovered	10
Much better	8
Somewhat better	3
Unchanged	2
	—
Total	24
Apparently normal patients	
Socially recovered	36
Much better	10
Somewhat better	8
Unchanged	8
	—
Total	62

As to the final prognosis, it is of utmost importance to induce the feeling in the patient that he is really sick and in need of treatment. He should be told that just as persons with diabetes must avoid sugar, so he must avoid alcohol and use antabus® as his insulin. He must be informed that his constitution is such that for him alcohol is a poison.

Group Therapy. — Group therapy has proved extremely useful from the very beginning. In the sanatorium, the older patients follow with interest the newcomer's vain attempts to drink alcohol and even encourage him to experiment now and again. After a few days, this patient regards the new patients with the same interest and sympathy with which he was regarded. During this time, the patients may discuss their problems freely with each other. Early in their treatment, they have the opportunity to assist others, which gives them the self confidence to conquer the inferiority complex that is pathognomonic to most persons with alcoholism.



Graphs showing the influence of the age of the alcoholic patient and the duration of abuse on the results obtained on treatment with antabus.®

For continued treatment, an association "Ring i Ring," on the pattern of Alcoholics Anonymous, has been formed. Here the members have the opportunity to fill in the gaps in their lives which remain after they begin abstinence. The fate of their fellows can be an encouragement or a warning to them. Finally, the mutual support is of paramount importance in this association, as in all other groups of this kind.

Physical Rehabilitations.—Physical rebuilding has been sustained with administration of vitamin B preparations and insulin in some cases. Even without this, it is astonishing how little time is required for the patient to conquer his tremor and his morning vomiting and to regain his appetite. Often, the patient is physically restored within one or two weeks.

PRESENT MATERIAL

From December 1947 to May 15, 1948, 104 patients asked for treatment for alcoholism. A few were treated in the clinic of the Frederiksberg Hospital, Copenhagen. Eight of the patients were women. All patients were submitted to the antabus® treatment. Four patients were unable to be contacted after two to three months of treatment. One patient died of a cerebral hemorrhage after three months of treatment; 99 could be followed for six months, and 42 of these for nine months. The age of the patients and the degree of their alcoholism are given in the tables.

RESULTS

The results were due to the combined use of the medicament and psychotherapy and are given in the tables. In these tables, the following terms are used: "Socially recovered" designates a patient who can competently perform his work and live in harmony with his family. He may have relapses, but they are few, do not last more than twenty-four hours and do not influence his work or his family life. "Much better" designates a patient who can perform his work with integrity and who has had a few relapses that have not disturbed his social status. "Somewhat better" designates a patient that is somewhat improved but is subject to attacks which influence his work and/or his family life. "Unchanged" designates a patient in whom no real improvement has been noted. All these judgments are based on the statements of relatives, and, in some cases, after personal and repeated inspection of the patients' homes.

The condition of the patient after six months of treatment, the readiness with which he takes the tablets and the attitude of the relatives are given in table 1. It may be seen that the results are best when the patient readily and steadily takes the tablets and when the relatives are understanding. The figure shows the influence of the age of the patient and the duration of abuse on the results obtained. In table 2, the patients are placed into groups according to their past lives. As is to be expected, patients who were previously treated without effect show worse results than the group not previously treated.

Table 3 groups the material according to psychiatric diagnoses. These diagnoses are independent of the patient's attitude to the treatment. Patients with more or less pronounced psychiatric symptoms (signs of psychoneurosis or a manic-depressive state) are more difficult to treat than the psychically normal patient. Of course, the terms refer only to the alcoholism of the patients. If a patient is termed "socially recovered," it means only that he has stopped drinking. His mental disorders generally remain and present new problems to the psychiatrist.

The results after three months of treatment are not much altered during the next three to six months. In a few cases, there may be both improvement or the opposite, but a patient who is socially recovered after three months of treatment has an 85 per cent chance to remain socially restored after six months of treatment. The results after nine months are about the same as after six months, but the figures are too small to permit definite conclusions. Table 4 gives the results after three, six and nine months of treatment.

TABLE 4.—*Status of Persons with Alcoholism Six Months After Institution of Treatment with Antabus® Compared with Status After Three and After Nine Months*

	Socially Recovered	Much Better	Somewhat Better	Unchanged	Total
Status after 6 months	52	19	12	16	99
Status after 3 months					
Socially recovered	43	2	2	2*	49
Much better	5	14	0	3	22
Somewhat better	4	2	10	0	16
Unchanged	0	1	0	11	12
Total					99
Status after 9 months					
Socially recovered	18	2	0	2*	22
Much better	1	5	0	0	6
Somewhat better	0	0	3	0	3
Unchanged	1	0	1	9	11
Not observed during the last 3 months	32	12	8	5	57
Total					99

* The same 2 patients.

In this treatment, relapses do not play the serious role as in other treatments of alcoholism. Relapses are seen in patients who have stopped medication or who are treated with too small doses. After four to eight weeks of treatment, a number of patients are convinced that they are cured and never will taste alcohol again and therefore stop medication. Sooner or later, such patients will be tempted to take a "single" drink with the well known results. If such patients are still under observation, it is easy to stop the relapse in a day or two by means of renewed or increased medication. Generally, no serious damage is done. Often the accident will convince the patient that his optimism was unfounded and that he has to take his medicine for a long time. In these cases the relapse has fulfilled an instructive purpose. In cases in which the patient has stopped medication because he has no serious conception of his disease, it can be extremely difficult to keep him under control. Of course, his relapse can be cut short just as easily as in all other cases, but it will soon be followed by other relapses. Much patience is required on the part of the physician, relatives and friends to prevent such a patient from slipping out of control gradually.

Our experience is still too small to decide how long the patients must continue medication. Twenty-eight patients had no relapses during six months of observation, but only 11 of these continued medication that long a time. The others discontinued use of the drug after a longer or shorter time. Two patients stopped taking it after one month, and about half of the patients stopped after four to five months. It is, of course, necessary to follow these patients a long time and resume medication in case of relapse.

COMMENT

It is absolutely necessary to keep the patient under control for a long time, even after the cessation of medication. The patient still has the intolerance to alcohol which is characteristic of persons with alcoholism, and, regardless of how recovered they may feel, he always runs the risk of temptation. Experience has shown that even though the patient asserts his readiness to be cured at the beginning, it requires great effort on the part of the physician and relatives to encourage him to continue medication for a sufficiently long time. He is often inclined to take "holidays" in connection with approaching major parties. It must be explained to the patient that this procedure is wrong and will only result in more "holidays" and shorter intervals between. Antabus® is cheap and easy to administer, but it is also easy for the patient to discontinue treatment, thinking that he readily can stop drinking again by resuming medication. For this reason, the antabus® treatment offers new and difficult problems for the therapeutist.

Finally, we need not emphasize that six to nine months is an extremely short observation period to evaluate the final results for a cure for alcoholism. Nevertheless, we find antabus® promising and are convinced that, if properly used, it may be of value in the difficult task of treating persons with alcoholism.

SUMMARY

Alcohol given to persons previously treated with tetraethylthiuram disufide (antabus®) produces a series of disagreeable symptoms, which are the result of an increased concentration of acetaldehyde formed from alcohol in the organism. The symptoms are generally so severe that they prevent persons from taking alcohol. As long as the patients take the tablets, they will not drink.

Ninety-nine persons with alcoholism were treated with this substance and observed six months or more. After six months of observation, 52 can be regarded as socially recovered and 19 as much better. The medication must be combined with intensive psychotherapy in order to obtain permanent results.

Clinical Notes, Suggestions and New Instruments

CEREBRAL THROMBOSIS PRECIPITATED BY INJECTION OF A MERCURIAL DIURETIC

HENRY I. RUSSEK, M.D.
and
BURTON L. ZOHMAN, M.D.
Staten Island, N. Y.

Serious untoward effects from the use of mercurial diuretics in congestive heart failure have been relatively rare. Although some immediate fatalities have been reported from the intravenous use of these agents, it is generally recognized that the incidence of such reactions must be extremely low. Nevertheless, routine administration by the intramuscular route has been advocated as a means of preventing fatalities of this type.

Regardless of the method of administration, however, severe diuresis occasionally causes weakness, anorexia, mental confusion, apathy, restlessness, delirium, hallucinations and more rarely coma and death. It has been observed, moreover, that such manifestations of dehydration, which generally develop six to twelve hours after injection, are more prone to arise in the elderly patient.

In analyzing the toxic reactions to mercurial diuretics encountered at the United States Marine Hospital, Staten Island, during the past ten years, we observed a side effect heretofore not reported, namely, cerebral thrombosis. It had been the custom to inject 2 cc. of the diuretic intravenously in all cases in which the drug was used. No immediate serious reactions were encountered. In 3 patients, however, hemiplegia developed eight to fourteen hours after injection. Each of these patients was over 70 years of age. Two had hypertensive heart disease, one with sinus tachycardia and the other with auricular fibrillation. The third had calcareous aortic stenosis with sinus rhythm. All were in a stage of moderate congestive failure. In all of the patients there was a precipitous fall in the blood pressure following profound diuresis. The course was progressively downhill, with termination in one to three weeks. Two of the patients came to autopsy, and in each a fresh thrombus was found at the site of atheromatous degeneration in the left middle cerebral artery.

COMMENT

It is acknowledged that hemiplegia may arise from various causes in the elderly subject with congestive heart failure. Indeed, diminished blood flow to the brain in circulatory failure may in itself precipitate cerebral thrombosis. Embolization to a cerebral artery, particularly when auricular fibrillation has been present, as well as cerebral hemorrhage, cannot be excluded on purely clinical grounds. In the cases studied at necropsy, however, neither of the latter conditions was observed. The development of cerebral thrombosis eight to fourteen hours after an injection of a mercurial diuretic which caused extreme diuresis and fall in blood pressure strongly suggests a causal relationship in these cases. Excessive diuresis with or without a lag in the mobilization of tissue fluids undoubtedly may lead to appreciable decrease in circulating blood volume, cardiac output, systemic blood pressure and cerebral blood flow. It is conceivable that fresh coronary thrombosis may be precipitated in a similar manner when there is underlying coronary disease.

Experience in the handling of cardiac conditions soon teaches that the dosage of the mercurial diuretic, like that of digitalis, must be tailored to fit the patient. Not infrequently, 0.75 cc. is found to produce the desired effect without the weakness, prostration, muscle cramps and other symptoms which frequently follow larger doses. The routine use of 2 cc. for a first injection, whether given intramuscularly or intravenously, should be discouraged, particularly in elderly subjects.

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Director of Cardiovascular Research (Dr. Russek) and Consultant Cardiologist (Dr. Zohman), United States Marine Hospital, Staten Island, N. Y.

SUMMARY

Cerebral thrombosis with hemiplegia appeared to be precipitated by the injection of a mercurial diuretic in 3 elderly patients with congestive heart failure. This complication followed profound diuresis and fall in blood pressure resulting from excessive dosage of the drug. Coronary thrombosis could conceivably be caused in similar manner when there is underlying coronary disease. The routine use of 2 cc. of a mercurial diuretic for a first injection should be deprecated, especially for patients of advanced age.

Council on Physical Medicine

The following statement has been prepared by Dr. Charles S. Wise of the Department of Physical Medicine, George Washington University, and Chairman of the Committee on Cooperation of the American Congress of Physical Medicine with the Food and Drug Administration, as a result of conferences at the annual meeting of the American Congress of Physical Medicine. It has been reviewed by officials of the Food and Drug Administration, who have offered no adverse comment, and has been approved by the Council on Physical Medicine. HOWARD A. CARTER, *Secretary.*

A GUIDE FOR LABELING OF INFRA-RED HEATING DEVICES

With the establishment of physical medicine as a recognized medical specialty, qualified physicians in this field must assume some responsibility in the protection of the general public from false or misleading claims made in conjunction with devices which are becoming increasingly available. The Council on Physical Medicine of the American Medical Association is responsible for censorship of such claims made in regard to physical devices primarily intended for sale to physicians. The Food and Drug Administration of the Federal Security Agency, moreover, has the responsibility for protecting purchasers from misbranded or dangerous devices and drugs. The excellent progress already made in the field of drug therapy regarding high standards of labeling and accurate allowable therapeutic claims is largely due to the expert assistance which has been accorded the Food and Drug Administration by the various medical specialty groups. It is to be hoped that similar high standards for labeling and therapeutic claims for physical devices might be obtained through the provisions of the Federal Food, Drug and Cosmetic Act and the counsel and advice of specialists in physical medicine.

An immediate problem at hand has arisen through the widespread distribution and use by the lay public of infra-red heating devices. Many of the reputable manufacturers of infra-red heating lamps have continued to maintain high standards in their labeling and therapeutic claims in connection with their products, and it is expected that they will continue to maintain these high standards. Unfortunately, however, the general public is being continuously bombarded by advertising and labeling from manufacturers of heating lamps in which a host of therapeutic claims are made, many of which are open to serious question. Aside from being marketed with false and misleading therapeutic claims, many of these lamps are not supplied with adequate directions for use, and the inherent dangers of indiscriminate use of heating devices are obvious to the trained physiatrist. In view of this serious situation, the Committee on Cooperation of the American Congress of Physical Medicine with the Food and Drug Administration, in conjunction with the Council on Physical Medicine, has attempted to set up a minimal guide for labeling of infra-red devices based on the medical facts available from experts in this field.

It is the consensus among physiatrists that infra-red heating is in no way a specific therapy. It is felt that such standards as are applied to nonspecific drugs regarding therapeutic claims should also be utilized as a model for therapeutic claims for infra-red heating devices sold generally. For example, in the sale of such drugs as acetylsalicylic acid, or other nonspecific analgesics, the Food and Drug Administration regards as appropriate the claim "For relief of minor muscular aches and pains." It is felt that additional reference to specific disease entities for infra-red heating devices would lead to inappropriate use by lay purchasers in the belief that the device is a treatment for the underlying cause of the disease rather than beneficial only as a palliative. In addition, the inherent dangers associated with self diagnosis and self treatment in serious disease conditions would be involved.

It was also the consensus of the committee and other physiatrists consulted that the use of the terms "penetrating" and "deep" used in the labeling of infra-red heating devices is definitely misleading. When these terms are employed in conjunction with therapeutic claims for relief of muscular aches and pains, experience shows that the uninformed general public is misled into the belief that this radiation penetrates to the site of the involvement. Although it is well known that certain portions of the infra-red spectrum can pass through tissues to a greater extent than others, the penetration even with the shortest infra-red radiation is measured in millimeters. In view of this degree of penetration, and since we have effective means for deep heating by diathermy, and since the term "deep therapy" is used in conjunction with roentgen radiation, where depths of many centimeters of penetration are obtained, it is felt that these two terms are misleading and should not be employed in the labeling of infra-red devices.

To insure maximum protection of the general public in the use of physical devices, it is essential that the labeling contain adequate directions for use and adequate warnings against misuse. In a survey of representative labeling of infra-red heating lamps it is apparent that many manufacturers fail to include adequate directions and precautions. The committee believes that adequate directions should include the minimum safe distance at which the lamp should be placed, in order to provide a comfortable warmth. It is also advised that adequate warnings should be set forth against the unattended use of infra-red heat for children, debilitated persons, over anesthetic skin areas or in the presence of poor circulation.

Such gross mislabeling of physical devices as exists today reflects poorly on the status of physical medicine as a responsible medical specialty. The physiatrist should assume the responsibility for lending expert counsel to the Food and Drug Administration in cooperation with the Council on Physical Medicine in its efforts to obtain suitable standards for labeling of all physical devices for sale to the general public.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

ADRENAL CORTEX EXTRACT (See New and Nonofficial Remedies 1948, p. 364).

The following additional dosage form has been accepted:

THE UPJOHN COMPANY, KALAMAZOO 99, MICH.

Solution Adrenal Cortex Extract: 50 dog units per cc., 50 cc. vials. Each cc. contains not less than 50 dog units when assayed by the Cartland and Kuizenga method, in isotonic sodium chloride solution. Preserved with alcohol 10 per cent.

DIGITOXIN-U.S.P. (See New and Nonofficial Remedies 1948, p. 267).

The following dosage forms have been accepted:

S. F. DURST & COMPANY, INC., PHILADELPHIA 20.

Tablets Digitoxin: 0.1 mg. and 0.2 mg.

CARROLL DUNHAM SMITH PHARMACAL CO., NEW BRUNSWICK, N. J.

Tablets Digitoxin: 0.2 mg.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 2, 1949

THE NATIONAL PHYSICIANS' COMMITTEE

For more than ten years the National Physicians' Committee has been a leader in the defense of the freedom of American medicine; its support has come largely from voluntary contributions of the medical profession and from many industries related to the provision of a high quality of medical service. Like every other person and agency that has become involved in what is essentially a political controversy, the National Physicians' Committee has been subjected to vilification and abuse, mostly by those who were offering to trade medical care for political prestige but, in some instances, also by those who should have been friends. Under the leadership, from the beginning, of Dr. Edward H. Cary of Dallas, Texas, the committee has mustered to the support of the medical profession great numbers of citizens who saw in governmental regimentation of medical care but the first step toward the destruction of the American democracy. On the Board of Directors of the National Physicians' Committee former presidents of the American Medical Association, presidents of state medical societies, members of the House of Delegates and many other medical leaders not associated with the American Medical Association have served without compensation and often even without payment of the expenses covering their travels. Their work has been done in the missionary spirit.

With the coming of the present federal administration, the controversy over insurance to cover the costs of medical care has moved into a new level of intensity. Associated now with the promotion of this legislation by Wagner, Murray and Dingell and others leaning far to the left in governmental affairs, such as Senators Taylor, McGrath and Pepper, are misguided philanthropists and ambitious politicians who are using the vicious technics of propaganda to produce disaffection in the American Medical Association, distrust of medical leaders and enmity for the medical profession as a whole. Fortunately the prestige of scientific medicine the United States is so high that even this campaign could not injure it. Fortunately most American people are trustful of their individual doctors. This campaign can do them little harm. However, as was emphasized by Dr. Frank F. Borzell, Speaker of the House of Delegates, in a recent communication, the technic of the opposition has been the old "divide and conquer" formula. Surely the physicians of this country who are in a preponderant majority opposed to governmental regimentation of medical practice will recognize the nature of the campaign that is being waged.

No one asserts or claims that leadership in American medicine has not on occasion made mistakes. No one claims that every decision by the National Physicians' Committee has been perfect. No one claims even that the House of Delegates has not on occasion been slow to change its point of view. But medical leadership does claim that physicians must have evidence of the desirability of new methods and new technics in the delivery of medical service before it can act for the medical profession of the nation in accepting any proposal. Indeed, the great hazard of all such legislation as that which perpetrated the National Health Act on the people of Great Britain is the difficulty of eliminating such a procedure even after its faults have become horribly obvious. Better to delay in the interest of safeguarding the public health than to be pushed for public favor into a position from which there is no retreat.

When the National Physicians' Committee was first proposed as an agency to carry the campaign, its existence was justified by the statement that new times demand new technics. Today when the leader of a new federal administration throws the entire force of his position and his administration behind governmental medicine, the new approach adopted by the House of Delegates was the voluntary assessment of the membership of the American Medical Association in support of a far more powerful process of education of the people on this subject than has ever previously been possible. The medical profession has responded wholeheartedly; already enough funds are in hand to meet the budget of the first year.

Obviously the next question must be as to the future of the National Physicians' Committee. What that future is to be will depend on the decision of its own board of directors, since the organization has not been in the past and is not now in any way bound by the American Medical Association. No doubt its directors will continue to give their utmost support to the cause of freedom for American medicine; no doubt the agencies that have supported its work in the past will decide to continue if not increase their support to this cause under the stress of the intensified threat. The National Physicians' Committee has rendered an important service and has had the approval of the House of Delegates of the American Medical Association.

PENICILLIN FOR ORAL PROPHYLAXIS OF VENEREAL DISEASE—A WARNING

In October 1948, Eagle[1] reported the results of a study conducted in a Naval activity which showed that 100,000 to 250,000 units of penicillin by mouth, taken after exposure to venereal disease, would reduce the incidence of gonorrhea by 85 per cent or more. Following the publication of this report came strong pressure for general adoption of this measure. A second study conducted in the Navy[2] indicated that the prophylactic effect of orally administered penicillin on gonorrhea diminished fairly rapidly with the increase of time between exposure and ingestion of the penicillin. After an elapsed time averaging fifteen hours between exposure and prophylaxis, the efficacy of the measure apparently dropped to less than 50 per cent.

The Navy does not contemplate general adoption of this prophylactic measure against venereal disease. First, the method will presumably not protect against chancroid, lymphogranuloma venereum or granuloma inguinale, diseases which are of importance in many areas of the world. The efficacy of the measure against syphilis is not known and can be determined in man only after long and careful studies involving hundreds of thousands of individual uses. A long time must elapse before the reliability of this procedure as prophylaxis against syphilis can be established. Estimates indicate that a cost of approximately $75 per case of gonorrhea prevented at one of the Navy's largest prophylactic stations would have been incurred,[3] had oral prophylaxis with 250,000 units of penicillin been added to the standard Navy prophylaxis. This cost would of course diminish in proportion to the increased risk of contracting gonorrhea which exists in certain foreign ports, and the measure might approach economic justification in certain selected localities. The mass use of penicillin orally for prophylaxis of venereal disease will probably be adopted by the Navy, if at all, only for certain selected areas and periods when risk of contracting venereal disease in a particular group is abnormally high. The procedure will not of course be recommended as the sole prophylactic measure.

The use of penicillin orally by persons not in armed forces will be a matter for individual decision, if the tablets are made available over the counter. For those who do not use prophylactic measures or whose skill or knowledge are insufficient to use known effective measures properly, and possibly for women, this method offers for the time being a valuable protection to health. The method can be demonstrated to be economically unsound, since scores of tablets would be taken in order to prevent a single attack of gonorrhea in most American cities.

The measure presents a potential hazard of great magnitude to the venereal disease control programs of public health agencies. Some laboratory evidence indicates that the tendency of the gonococcus to become resistant to penicillin is much less than its tendency to become resistant to sulfonamide compounds. The resistance to penicillin is rather easily lost. After a failure of cure with a given dose, the same dose on a later day may sometimes effect a cure.

One reason that penicillin-resistant strains of gonococci have not become prevalent in this country is believed to be that the standard dose of penicillin used in treatment in this country is several times the minimal curative dose. Usually the dosages used will cure all but 1 or 2 per cent of the cases in the first course of treatment. This excessive dosage will kill off promptly almost all mutant strains that have developed only moderate resistance. Occasionally as much as 900,000 units of penicillin is needed to obtain a cure in gonorrhea.[4]

Considering that blood levels obtained by oral administration of penicillin are only a small fraction of those obtained by the standard parenteral treatment for gonorrhea, the general adoption of oral prophylaxis against gonorrhea might eventuate in a large number of persons' harboring gonococci and receiving frequent subcurative doses of the antibiotic. This new situation would be ideal for production and propagation of resistant strains of gonococci. Although the possibility is as yet only a question, the general use of penicillin orally for the prophylaxis of gonorrhea might hasten the day when 1,000,000 units of penicillin will be required to cure an average case of gonorrhea.

ROLE OF THE HOSPITALS IN MEETING NEED FOR PHYSICIANS FOR THE ARMED FORCES

The Council on National Emergency Medical Service of the American Medical Association held a conference in the headquarters office recently with a view to determining procedures to be followed in obtaining the physicians immediately required by the armed forces. The response to registered letters sent by Mr. Forrestal to all young physicians trained under the A.S.T.P. and V-12 programs who had not yet had military service was quite inadequate. Apparently but few of these young men are impressed with their responsibility in the present emergency. Most of them are of course at present engaged in residencies, which apparently they do not wish to leave. The Army, Navy and Air Force require more than two thousand doctors to take the place of physicians whose two year service periods expire by December 31. Replacements must be available, preferably by that time. The proposal has been made that hospitals from now on give credit in making their appointments to residencies to those young physicians who have had military service. In competitive examinations such credit may well be the determining factor in making the appointment. Unless the response is sufficient to meet the need, the federal government will unquestionably have to secure these young men by draft, and the Association will certainly not be in any position to oppose such draft.

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[1] Eagle, H.; Gude, A. V.; Beckman, G. E.; Mast, G.; Sapero, J. J., and Shindledecker, J. B.: Prevention of Gonorrhea with Penicillin Tablets. Public Health Rep. **63**: 1411-1415 (Oct. 29) 1948.

[2] Campbell, V. W. H.; Dougherty, W. J., and Curtis, C. E.: Delayed Administration of Oral Penicillin as Prophylaxis for Gonorrhea, to be published.

[3] Because of recent reduction in the cost of penicillin to the Government this figure would perhaps be approximately $30.

[4] Parkhurst, G. E.; Harb, F. W., and Cannefax, G. R.: Penicillin Resistant Gonorrhea vs. Non-specific Urethritis. V.D.I.: **28**.. 211-213, Oct. 1947.

Many men in this group are deterred from accepting reserve commissions by contracts with hospitals for residencies. Hospitals should review the contracts that they have made for the next year. In the instances in which they have contracted with men who have not had military service they should discuss the possibility of deferring the date for fulfilling the contract and hold the residency available until the physicians concerned have completed their period of service in the armed forces; this period will be two years. In the interval hospitals should easily obtain temporary replacements, by utilizing the services of physicians who have completed their military service.

Current Comment

A STATE PROGRAM AGAINST CANCER

The Illinois Division of the American Cancer Society has mailed a letter with the approval of the American College of Surgeons, the "Downstate" Projects Committee, the Medical and Scientific Committee of the Illinois Division and the Cancer Committee of the Illinois State Medical Society to the president and the secretary of each county medical society. The letter stresses a growing demand by the public for a physical examination which would aid in early detection of cancer. The establishment of cancer detection centers would be difficult, and it has been suggested that "every doctor's office act as a Cancer Detection Center." The following minimal examination may be performed in each doctor's office. This examination would include a history to elicit possible symptoms of cancer, examination of the various orifices, examination of the skin and palpation of lymph nodes, blood pressure, examination of heart and lungs by percussion and auscultation, careful examination of the female breast, abdominal palpation, bimanual and visual pelvic examination in women and digital rectal examination to include prostate in men, and also urinalysis. Vaginal smear study, complete blood examination, roentgen examination of the chest and the like could be eliminated as a routine procedure. The authors of the letter felt that this plan would benefit the medical profession by improving medical public relations. Although limited in scope, the proposal is the first cooperative effort of its kind developed for the medical profession of Illinois.

MICROWAVE RADIATIONS

Osborne and Frederick[1] have studied the effects of microwave radiations on the living tissues and particularly on the eye. The radiations were formed by the Raytheon® microtherm which generates energy in a continuous wave, air-cooled magnetron oscillator tube, the first generator of this type to be developed for the heating of human tissues. The microtherm operates at a frequency of 2,400 to 2,500 megacycles or at a wave length of approximately 12 cm. with a maximum power output of 125 watts. After exposure of thighs of dogs to high frequency energy, the maximum temperature was observed in the subcutaneous level and decreasing temperatures were found with increasing depths. The average temperature at a depth of 2 inches (5.1 cm.) from the skin surface was 104.1 F. In 7 "acute" experiments on dogs the eye was exposed to microwave radiations. The average temperature of the vitreous body following microwave treatment was 105.8 F. One animal received a series of six treatments over a period of three weeks. Evidence of damage to the eyes or contiguous tissues did not appear. In twenty-four experiments on human subjects the thigh was exposed to microwave radiations. The average temperature at a depth of approximately 2 inches immediately following irradiation was 104.2 F. One small superficial blister was produced. The treatments were comfortable to the patients and a minimum of erythema was noted. Worden and his associates[2] report experiments on the temperatures of the skin, subcutaneous tissue, superficial muscle and deep muscle of the thigh of the dog after exposure to microwaves with the circulation intact and after ischemia produced by clamping the abdominal aorta. The temperature rises in the ischemic tissues were slightly higher than in normal tissues but were not considered significant after five or ten minutes of exposure, nor was there any evidence of burning after exposure for these shorter periods. After fifteen to twenty minutes of exposure the increased temperatures in ischemic tissues were considered significant with gross evidence of burning in most of the animals. The authors conclude that temperature tolerated by normal tissues cannot be regarded as the safe range of tolerance for ischemic tissues. Bony prominences were potential sites for formations of blebs. Richardson and his associates,[3] utilizing the Raytheon® microwave generator, produced cataractous lenticular opacities in rabbit eye after a direct single exposure. The average temperature of the vitreous in this experiment was found to be 55.1 C. at the posterior pole of the lens, while that of the cornea was found to be 49.4 C. A series of repeated exposures of a smaller magnitude resulted in cataractous lenticular opacities after a delay of two to forty-two days. Until further data are accumulated, precaution should be observed in the use of microwaves in the region of the face and orbit.

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1. Osborne, S. L., and Frederick, J. N.: Microwave Radiations, J. A. M. A. **137**: 1036-1040 (July 17) 1948.
2. Worden, R. E.; Herrick, J. F.; Wakim, K. G., and Krusen, F. H.: The Heating Effects of Microwaves With and Without Ischemia, Arch. Phys. Med. **29**: 751-758 (Dec.) 1948.
3. Richardson, A. W.; Duane, T. D., and Hines, H. M.: Experimental Lenticular Opacities Produced by Microwave Irradiations, Arch. Phys. Med. **29**: 765-769 (Dec.) 1948.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

March 28, 1949.

A. M. A. Leaders and Secretary Krug Plan New Medical Missions

Secretary of the Interior Krug conferred on March 24 with leaders of the American Medical Association on cooperative sponsorship of new medical missions. These will be undertaken, probably first in Alaska and on Navajo-Hopi reservations of the Southwest, as a result of the success which attended the eight medical surveys conducted in 1947-1948 under similar auspices. The new program, however, will concern itself with medical care and advanced instruction of Indian Bureau doctors, the task of surveying the needs having been completed. The American Medical Association again will have the responsibility of selecting teams of specialists to go on the missions. It is expected that the first will be sent out this summer, probably to Sitka, Alaska. Attending the March 24 conference were Drs. R. L. Sensenich, Ernst E. Irons, George Lull, Morris Fishbein, Ernest B. Howard, James R. Miller, Elmer L. Henderson, Louis H. Bauer, Edwin S. Hamilton, Joseph Lawrence, William A. Morgan and R. Lyman Sexton.

During April and May, the Bureau of Indian Affairs will make an effort to administer BCG vaccination against tuberculosis to all Indian children who are shown by test to be unexposed. Eight teams, each comprising a physician, a public health nurse and a recording clerk, will give the vaccinations in the following states: Arizona, Colorado, New Mexico, Utah, Idaho, Montana, Nebraska, North Dakota, South Dakota and Wyoming.

Hearing on Veterans Hospitals Nears Close

Protests against proposed retrenchment of the Veterans Administration hospital construction program were heard by a special Senate subcommittee during the week ended March 26. A supplementary statement presented by the American Hospital Association and a factual report by the Oklahoma State Medical Association were among the few documents added to the hearing record which did not criticize President Truman's executive order to eliminate or reduce the size of thirty-eight new hospitals for veterans.

John H. Hayes, superintendent of Lenox Hill (New York City) Hospital and chairman of the Council on Government Relations, American Hospital Association, filed a statement emphasizing that the veterans hospital program exceeds the need of service-connected cases. Dr. Austin H. Bell, representing the Oklahoma State Medical Association, presented statistics on availability of physicians, dentists, nurses and auxiliary personnel in his state, leaving it to the Senate subcommittee to decide whether their numbers are sufficient to permit adequate staffing of veterans hospitals in Oklahoma. According to his testimony, the state has 2,266 licensed practitioners of medicine, 752 dentists, 3,513 registered nurses, 210 registered laboratory technicians, 71 registered x-ray technicians, 20 registered physical therapists and nine registered occupational therapists.

Surgeon General Appeals for Restoration of Budget Cuts

Dr. Leonard A. Scheele, Surgeon General of the U. S. Public Health Service, went before the Senate Appropriation Committee on March 24 to appeal for restoration of funds which had been eliminated by the House when it passed the agency's budget for 1950. Principal items at issue are: general assistance to the states, control of communicable diseases, expenses for administration of the Hill-Burton hospital construction act, a special vital statistics project and water pollution control.

Chief emphasis was placed by Dr. Scheele on the need for appropriating the full amount of $24,408,000 which was approved by the Budget Bureau for assistance of local public health units, immunization programs and other forms of aid to the states. This figure was trimmed to $13,600,000 in the House-passed bill.

"State health officers have given us their positive assurance that the entire amount contained in the President's budget is essential and can be utilized effectively at this time," said Dr. Scheele. "The program of general assistance to the states is the backbone of expanding federal-state cooperative activities in the field of public health."

The other reductions which he asked the Senate to restore were $250,000 for communicable disease control, notably malaria and typhus work in endemic areas; $400,000 for expenses of administering the Hill-Burton act; $295,000 for a vital statistics project, one phase of which is a test of the completeness of birth registration, and $380,000 for administration of the water pollution control act.

Enactment by the Senate of the appropriations bill is expected in April. The measure then will be sent to conference, where differences between the House and Senate will be ironed out and compromises effected.

Lodge Bill to Provide "Free" Drugs Reintroduced

A federal-state program designed to raise health standards and give economic relief to patients who are medically indigent has been proposed again by Senator Henry Cabot Lodge Jr. (Republican, Mass.) His bill, S. 1106, is identical to the one he submitted in the last session of Congress. Drugs, roentgenologic services, laboratory diagnostic services and respirators would be made available without cost to the patient when the need for such aids was certified by a local administrative authority, by terms of S. 1106. One half the cost would be borne by the federal government. Eligibility of applicants would be determined locally rather than by the Surgeon General of the Public Health Service, who would have general supervision of the program.

Other legislation introduced the first week in March included bills that would further liberalize provisions of the Hill-Burton Act; establish a Federal Commission on Services for the Physically Handicapped and amend the Food and Drug Act to provide for certification of drugs composed wholly or in part of aureomycin, chloramphenicol (chloromycetin®) or bacitracin.

British Health System Described by Dr. Davis

The February 11 issue of *Public Health Reports,* weekly publication of the U. S. Public Health Service, consists mainly of a detailed account of the organization of the British National Health Service, which became effective on July 5, 1948. The author is Dr. Burnet M. Davis, of the Division of Public Health Methods, U. S. Public Health Service. He is a son of Michael M. Davis, executive director of the Committee for the Nation's Health.

"No attempt is made to pass judgment on either the desirability or feasibility of the program, or to appraise its operation," Dr. Davis says in the article's introduction. The account covers 30 printed pages.

Veterans Administration Designates 5 Medical Substations

Atlanta, Boston, San Francisco, St. Louis and Fort Snelling, Minn., have been announced by Veterans Administration as key positions from which medical supervision of hospitals will be performed. Their selection follows elimination of the Veterans Administration's branch office system, which provided for a chief medical officer at each of the thirteen branch offices. Their former functions are now centered in Washington.

Hoover Commission Favors Science Foundation

Establishment of a National Science Foundation is recommended by the Hoover Commission in a three part report on federal research transmitted to Congress on March 25. The science foundation bill already has been passed by the Senate, and House hearings on the question are scheduled for March 31, April 1 and April 4.

NATIONAL CONFERENCE ON RURAL HEALTH

Fourth Annual Meeting, convened at the Palmer House, Chicago, Feb. 4 and 5, 1948

DR. F. S. CROCKETT, Lafayette, Ind., *Chairman*, Presiding

FRIDAY FEB. 4, 1949

CHAIRMAN CROCKETT: Our first conference, as you know, explored the rural health situation in all parts of these United States. We came away with a truer picture of the rural needs and a better recognition of what it would take to cure those needs. The atmosphere of honest candor and friendly understanding set the pattern for these subsequent meetings. We hope we can continue on that broad friendly informative basis.

In our second conference, we employed the panel type of discussion with study of such subjects as how to get and keep medical personnel, especially doctors, nurses and dentists; hospital and diagnostic facilities; medical care for low income families, and prepayment plans for medical and hospital care. We reverted to the didactic type of program in our third conference. We paid tribute to rural youth, as eminent essayists gave us the benefit of their thinking. We learned that the tradition of the country as a healthful place to live was subject to some correction. We were told that the country was not better or worse than the city. Each, to be a healthful place *to live, must resort to well known health measures.*

This year we study the rural and farm environment. Life in the country is surrounded by many hazards; farm and highway accidents, animal diseases affecting human beings, depletion of the soil affecting nutritive crops, nutritive value of crops, and, since the war years, introduction of pestilence control in the use of chemicals not too well understood in relation to their poisonous qualities. This points to the preventive measures which local and state health councils must make.

Each year we continue to discuss rural needs in the light of the country doctor and community responsibility. It is a two way road and the trip must be made together.

Health programs of national organizations are an important part of this program today and are placed first in recognition of that fact. The American Medical Association has sought to work harmoniously with any and all groups interested in rural health. A number of other agencies have been active in this same field. They have all made valuable contributions to specific phases of the problem.

The plan of our committee is unity of effort. We are not *just conducting another plan.* We are *trying to get all the* other agencies, all other people that are interested in rural health, to join with us in a unified effort to reach the common objective. I am sure we have in the Community Health Council the mechanism for achieving unity of purpose and action and the avoidance of overlapping.

In forming the panel memberships we have tried this year especially to have persons who have never been on these programs before, leaders and other authorities who we felt had really new points of view and fresh enthusiasm. We have purposely left the members of our committee and our advisory committee free to mix with the audience and learn for themselves the strength and weakness of our present conference methods.

We have first the health programs for the national farm organizations. We have asked Mrs. J. Laning Taylor, Educational Director of the National Cooperative Milk Producers Federation of Washington, D. C., to present their program first.

Health Program of the National Cooperative Milk Producers Federation

MRS. J. LANING TAYLOR, Washington, D. C.: The National Cooperative Milk Producers Federation is a group of cooperative associations operating across the nation in forty-seven states and owned and controlled by the farmers themselves—some 425,000 of them. These associations fall into a number of categories. Some near large urban areas are primarily fluid milk bargaining groups. Others handle milk through their own facilities; from the farm to the consumer's doorstep. Many are engaged in manufacture of butter, cheese, evaporated milk or other dairy products. All are chiefly interested in marketing of milk, and all have interests and functions aside from marketing.

Health programs are basic to their business. All of us in the dairy industry are in a real sense purveyors of health. These foods require unusual sanitation in handling. They are subject to strict regulations in production and transportation and to rigid inspection. Laws and ordinances make it incumbent on dairy cooperatives to comply rigorously with basic health programs.

In each of the eighty-six member associations and the hundreds of submember associations there are well defined departments. The membership service department employs regular visitors to the farms of the individual milk producers. Their duties are to help individual farmers maintain quality production and farm sanitation. If anything goes wrong and an individual producer's milk falls below the prescribed standards, the field man is the trouble shooter. The field man's attention is directed to the utensils, the milk house and the barn equipment and the physical handling of the milk. It extends also to the herd. An association may have a full time veterinarian on its staff, or its field men may work with state, county or private veterinarians.

Membership service departments also advise and assist members through bulletins, motion pictures and meetings directed toward practical procedures in producing top quality dairy products. The purpose of membership services is twofold: (1) to assure the urban consumers of dairy products which meet or exceed the standards of quality set by local regulations and ordinances and (2) to assist the farmer member in meeting or exceeding these standards so that his milk and cream will net him a satisfactory return.

Dairy cooperatives place a great deal of emphasis on programs for quality production and farm sanitation. A questionnaire *survey shows that these programs account for 96 per cent of* the field staff's time. One of our larger organizations reports fifty-five dairy servicemen and thirty-four area managers.

Perhaps the most significant point to be derived from these and similar reports is the fact that where a rural health problem exists and where a plan is laid out to meet it, dairy farmers tackle it with a vengeance. They will go ahead on other rural health programs as they recognize the need, and as they clearly see the way toward accomplishment. The dairy farmer and his family have become health conscious, have learned the technics of farm sanitation and recognize the importance of disease-free herds. They know that although urban milk consumers are protected by milk pasteurization from bovine tuberculosis and brucellosis, they themselves are subject to bovine diseases communicable to man from drinking unpasteurized milk or from contact with diseased animals. They see the need for an all-out job in this direction.

Our questionnaire shows a wide support by dairy cooperatives of Farm Safety Week—by publicity, by articles, by posters, by efforts of field men, by contributions to the cost of advertisements in newspapers, and so on. Need and desirability of accident prevention has been recognized. The equally essential step has been the supplying of material by the National Safety Council.

In group hospitalization and health insurance projects large cooperative creameries and branches of large scale dairy cooperatives are probably the largest single group of cooperatives enrolled in Blue Cross. One of the large regional dairy associations, the Farm Credit Administration reports, has a program of hospital insurance with a commercial insurance company covering some 12,000 persons. These programs have been patterned so that they can be adopted and adapted by local rural groups.

Dairy cooperatives also promote and work with local health units, local health councils, and cooperative hospitals. They serve on local health boards. Others are members of hospital advisory councils. They support state and national legislation directed toward rural health programs.

While all dairy cooperatives are interested in some types of health program they are not all currently active in all phases of the broad rural health program. It is here that the local groups should be able to call upon the national organizations for assistance. The obligation of the National Cooperative Milk Producers Federation, the American Medical Association, and the general farm organizations is to ascertain and make available the patterns which can be most universally adapted to local rural health needs.

Today the health program of the National Cooperative Milk Producers Federation at the state and local levels is the sum total of the day to day and the month to month activities of its eighty-six members. Specific projects include:

(1) maintenance of quality milk production and farm sanitation; (2) elimination of bovine diseases, including those communicable to man; (3) participation in Blue Cross and other group hospitalization and health insurance plans; (4) quarantine insurance plans under which members are reimbursed for milk which is barred from shipment because of quarantine; (5) participation in Farm Safety Week; (6) promotion of soil-building programs, and (7) support of state and national legislation directed toward the elimination of animal diseases and the promotion of rural health programs.

The National Cooperative Milk Producers Federation on the national level recommended (1) the encouragement of prepaid medical, hospital and dental care on a voluntary basis, (2) federal aid to improve health standards through health education and research, (3) an expanding school lunch program and (4) support of federal-state programs for the control and eradication of bovine diseases.

Chairman Crockett. Mr. Joseph Fichter, master of the Ohio State Grange, Columbus, Ohio, will give us the health program of the National Grange.

Health Program of the National Grange

Mr. Joseph W. Fichter, Columbus, Ohio: The health program of the National Grange started about five or six years ago in an active way. The first unusual interest manifested by the National Grange was the result of a committee study and report in November 1943. As a result of that report, the organization worked out a stand on health in the form of resolutions. Since that time each succeeding year has seen resolutions adopted based on those of the previous year. Our farm people through their organizations are giving attention to the whole matter of health.

About five years ago a committee was appointed known as an interim health committee to carry out some of the things that were decided on at the annual session and to give thought to recommendations at the succeeding sessions. A committee of national scale was considered insufficient unless committees were established in state, county and local units. The organization appointed such committees. Not all the local units in the Grange throughout the nation have a health committee, but there are a large number.

Health committees have taken over the duties of our home economics committees. The home economics committees previously had health and nutrition as part of their task. It was felt, however, that the matter of health is so important that there ought to be a committee especially for that work.

We have meetings of our local granges every two weeks. During these meetings we have an educational program along with the business meeting, and the health committee presents something that ought to be discussed. Certain suggestions are made that arise in our national committee.

Last year we emphasized consideration of cancer and tuberculosis. This year we are going to include heart disease and mental health.

That is a broad outline of some of the things that we are doing in those fields. Increased emphasis needs to be given to the matter of diet and nutrition. If we get that we shall be able to save much money in all of the things that go to cure illness.

I should like to give you a summary of the action that was taken at our last National Grange Convention on the policy in rural health. Rural people should share fully in the benefits of modern medical science regardless of their economic status, race or geographic location, and to that end we recommend and are working for the improved accessibility and quality of hospital and medical facilities in rural areas with an increased number of well trained physicians in rural areas and a medical cost payment system which will enable all people to secure modern medical care without undue burden. Rural citizenry must be informed as to what constitutes adequate medical care and informed how it can best be secured. Adequate public health services and increased research in the various fields of health are necessary.

All the farm organizations feel that there is a shortage of doctors and health workers in rural communities. Yesterday we had the experience of having representatives from two of the groups, one of them from the Council on Medical Education and Hospitals of your Association and the other a representative of the Association of American Medical Colleges, who met with our rural health conference to bring to us the work that the Medical Association has done to increase the number of doctors and health workers in rural areas. We did not get the answer to the questions, but out of the discussion came this conclusion—that all of us in all of the fields lack information that needs to be supplied.

This experience we had yesterday is an indication of the value that can be obtained from constructive and mutual conferring as exemplified by this meeting today.

Health Program of North Dakota Farmers Union

Mrs. Lulu Evanson, Director of Education, Jamestown, N. D.: I will speak first on the national farm picture. We are working for a department of human resources, a secretary of human resources with cabinet standing, such as the Secretary of Agriculture, Labor or State. We spend millions every year for healthier animals and healthier lands, and we believe human beings should have the same consideration. We believe that insurance in health is necessary. We believe that it should contain the compulsory feature, just as we believe in compulsory education for our children.

We believe in the free choice of doctors and certainly that the doctors shall have a free choice of patients. We will continue to fight for local control of this program and that this national program shall provide for voluntary health programs.

We believe we should have scholarships, particularly for young men and women from rural areas who are unable to provide the money for education. We believe in federal aid for medical colleges so that they can provide training for more doctors, dentists, nurses and technicians. We should like to see changes in the Hill-Burton Bill, Hospital Construction Law No. 725. We should like to see eliminated the insistence that construction be let out on contract. We find in North Dakota that under contracts, cost of hospital construction is prohibitive.

In South Dakota they built a modern, up-to-date, eighteen bed hospital for $47,000. The same hospital in North Dakota, under contract and under the government program, will cost us from $285,000 to $300,000. If the people wish to donate labor it should be considered in the program; it cannot be under the present law.

Public health units are basic to a health program, and so we will continue to work for complete public health coverage not only for rural people but for the people in the small towns, for complete coverage in America.

We believe in our health workshops; we believe it is a way to get our people together with competent consultants at hand to study their health needs and to provide ways and means of meeting these needs.

We feel that environmental sanitation is vital in rural areas where so little has been done. We are asking for R. E. A. so that with electricity we may have modern facilities and sanitation.

One of the most vital steps forward is the preparation now of a study text on the relation of soil, plants and the general health of people. We have a triangle health plan—hospital, surgical and death benefits. We are developing a pilot cooperative clinic and hospital program to provide complete services for the insured under the triangle plan. We will continue our health education work, for we know that the welfare and security of the nation are tied closely to the health and welfare of its people.

Chairman Crockett: Mr. H. E. Slusher, Chairman, Medical Care Committee, will give us the Farm Bureau program.

Health Program of American Farm Bureau Federation

Mr. H. E. Slusher, Jefferson City, Mo.: The American Farm Bureau Federation held its thirtieth annual meeting in December 1948. The Bureau has a definite rural health program.

These are extracts from the 1948 resolution: Unfortunately, American medical service at its best reaches only a relatively small part of the rural areas of the country. The primary factors which most influence adequate medical facilities and which attract physicians are community environment and economic opportunity.

Rural people must first know their existing facilities and whether or not they are adequate. They must know the meaning of high standards in hospital and medical care. They must be taught the advantages of budgeting the costs of medical need as they do other household expenses. They must know the significance of health hazards around the farm home as they pertain to disease, including the relationship between animal diseases and human health. They must discover their own health needs and formulate their own program.

State farm bureaus must give serious consideration to the desirability and possibility of offering scholarships whereby physicians, surgeons, dentists and nurses will be encouraged to establish themselves in rural areas. We believe the problem of improved health can best be met by the voluntary organization of cooperative health associations which will encourage people to take advantage of the services available for any medical or dental care which they may require.

We favor voluntary plans providing medical, health, dental and hospital insurance. We urge that facilities of medical schools be expanded, and every effort be made otherwise to train more physicians, surgeons, dentists, nurses, technicians and general practitioners and public health doctors. We recommend the full cooperation of rural people with our established health units and existing health programs, including immunization, clinics, nutrition courses and home nursing. Greater emphasis should be given to preventive medicine. To the extent federal grants are needed by way of assistance, such grants should be made to states on the basis of need, with state governments responsible for the allocation and administration of these funds.

In the administration of the Hill-Burton Hospital Act and other similar acts, agriculture must have adequate representation on national and state advisory councils.

The health program of the American Farm Bureau Federation has been, first, education. Education means an awareness on the part of the individual that there is really a health problem. Cooperation with the medical profession has always been encouraged. State and county health councils have been organized. Cooperation in every way possible has been given to the state health departments.

Through the publicity department of the American Farm Bureau Federation and of the various state federations, support is given to the American Red Cross National Blood Program, Cancer, Tuberculosis, Venereal Disease, Poliomyelitis, Crippled Children, Heart and Rheumatic Fever programs.

Many of our state farm bureaus maintain full time health directors who cooperate actively with all state health groups. The bureaus sponsor Blue Cross hospital and Blue Shield medical-surgical programs. A few states have their own health insurance programs which are a part of their regular life insurance program. All of these programs are tied into the education activities of the organization.

The second step in the program is legislation. We suggest national legislation to help finance county hospitals and county health units on the basis of need. We feel that such programs should be on the basis of grants-in-aid and with a minimum of federal control. At the state level we assist in getting necessary enabling legislation passed to meet the requirements of the national legislation.

We have not recognized the need for or feasibility of a national compulsory health insurance program. Experience of such programs in England, Austria and Germany indicates that they have in no way solved the health problem. Such programs have aggravated the problem. The service and quality of medical care is much poorer than before the plan was put into effect. The integrity of the physicians is of a low standard, and medical service costs are extremely high in comparison with services rendered. Under such programs there can be no such thing as health insurance, and it is wrong in every sense of the word to tell the public that there will be.

The American Farm Bureau Federation still believes in the philosophy that the greatness of this country rests on the willingness of the individual to cooperate with his neighbor to find the solution to all his social and economic problems; that government should be for the people and not people "pawns" of the government.

Chairman Crockett: We will now proceed to the next subject on our program, "A State Rural Health Committee in Action," by Dr. DeTar, of the Committee on Rural Health, Michigan State Medical Society.

A State Rural Health Committee in Action

Dr. J. S. DeTar, Milan, Mich.: The paramount reasons for action by a state rural health committee are the same as similar action on a national level: disease among rural people, faulty nutrition, inadequate immunization, supply of hospitals and doctors, the high rate of mortality caused by accidents, the need for health education and the need of rural people to protect themselves against the financial hazards occasioned by sickness and hospitalization.

The need for action on the state level is of far greater importance than on the national level. And the need for action on the local community level outweighs the need on the state level. Until the rural people of America, including the farmers, the laborers, the civic leaders and the doctors, become sufficiently aware of the need for cooperative action on the local level it will be impossible for any action on a national and state scale to fulfill its purpose. Community health councils require and should have state leadership. The state health councils require and are getting help and guidance from this and the preceding three National Conferences on Rural Health.

Two years ago at the close of the meeting, a half a dozen persons from Michigan decided to plan a state rural health conference modeled after this meeting. Twenty state organizations were invited to participate. We asked the state medical society to finance the program. Two thousand dollars was appropriated for the first state rural health conference.

The Conference.—The first state rural health conference was held at the state capital. Sponsors included farm organizations, medical societies, universities, educational associations, health departments, pharmaceutical and nurses' groups, crippled children's and cancer societies, parents and teachers. The program included presentation of the health problems of rural people including hospital facilities, the problem of attracting physicians to rural areas, the financing of health programs, the need for nurses, the need for medical associates for a greater spread of the benefits of scientific advance, and the need for measuring more accurately the exact health needs of rural areas.

Preparation and execution of the program were done largely by the medical society. Conference talks and discussion were therefore slanted to the medical point of view. Physician participation overshadowed that of other groups. Every effort was made to provide multilateral participation, and the expression of opinion was stimulating. The main resolutions adopted by that first conference were: (1) a scholarship fund for medical students who would agree to practice in rural areas; (2) increased appropriations for our medical schools; (3) more local community health councils; (4) nurse recruitment among 4-H Club members, with assistance from local organizations, and (5) another conference the next year. This expression of opinion from three hundred persons from all over the state called for action.

Action.—1. Scholarships for Medical Students: A special fund was set up in a separate corporation called "The Michigan Foundation for Medical and Health Education." This foundation receives donations from all possible sources for educational purposes. To date, over $100,000 has been contributed to the foundation. Scholarships have been announced with provisions requiring practice in rural areas, similar to those in many other states. Opportunities and advantages of rural practice were presented by outstanding family physicians from small communities to medical students. Doctors who asked for information about rural areas were given a complete list of towns requesting physicians. Towns were informed of available doctors and their qualifications. To date, many additional physicians have settled in the rural areas of Michigan.

2. Increased Appropriations to Medical Schools: The legislature was persuaded to appropriate over $1,000,000 for a new maternity hospital at the University of Michigan. A committee was appointed by the state medical society to cooperate with the deans of the medical schools toward providing additional facilities and instruction.

3. More Local Community Health Councils: A local community health council in which farmers, and teachers and doctors and health specialists, could pool their efforts on a local level constituted the real essence of the problem. A State Health Council, with membership consisting of all state organizations interested in health, was organized. A board of trustees was elected. Twenty-two thousand, five hundred dollars was supplied by the state medical society and the Michigan Medical Service (Blue Shield) and Michigan Hospital Service (Blue Cross). An executive secretary was selected last month, offices were set up and work is progressing. The duties of the full time executive secretary will be to coordinate the work on a state level and assist local communities in the formation of their local community health councils which will have representation in the State Health Council. It appears that the results will justify the effort expended.

4. Nurse Recruitment: The aid of the woman's auxiliary of the state medical society was enlisted. A new committee of the state medical society called The Commission on Health Care was asked to investigate not only the need for nurses, but for associates of the physician in all fields, including the fields of dietetics, pharmacy, medical technology, physical therapy, roentgen technology and twenty-one other vocations associated with the practice of medicine. Eight thousand dollars was spent in this investigation and recruitment. Brochures were distributed to high schools, colleges and other interested educational organizations by the woman's auxiliary entitled "Planning Your Career as a Medical Associate."

5. The Second Rural Health Conference: This was held last September. More farm leaders served as panel discussants. The state health department participated freely. The sponsoring organizations list grew to forty-one. The conference was broken down into sixteen discussion groups, each treating a specific health problem such as community health councils, disease control, mental health, dental care, child guidance clinics, hospital construction, aid to medically indigent and health planning. The utilization of these small groups was found to be provocative of much freer discussion and expression of ideas. Thus, from just the spark of an idea two years ago, the annual State Rural Health Conference has grown to be a required institution fulfilling a real demand.

Other Results.—Action resulting from the first State Rural Health Conference was a determination developed by the people of one small rural community to build their own community health center in an endeavor to attract a new doctor to replace their recently retired 80 year old practitioner. This building will have offices for a physician and a dentist and a room for the county health nurse. It was completed entirely by local subscription of funds, without financial aid from any governmental agency or any medical organization. This community, on its own initiative, has undertaken to solve its own problem. This is as it should be.

How Great is the Rural Medical Need?—We could not answer this question, and decided to seek an honest answer, reached through investigation carried on in a scientific manner by an absolutely impartial observer. The Section on Sociology and Anthropology and the Social Research Service of the Michigan State College offered to cooperate. A research technic known as the "Symptoms Approach" was used. A carefully selected list of symptoms for which a doctor usually looks in taking a medical history are listed in nonmedical terms so that a person of nonmedical training, if carefully instructed, can obtain the desired information. Graduate students were employed to conduct interviews in one thousand households throughout the state. This part of the research has been completed. All findings are recorded on punch cards. When our study is complete, we will know how much difference there is between the need for medical services in the rural and the urban portions of our population. We will know what people like and what they dislike in their doctors. We will know what they think of their hospital attention. We will know where the need for medical attention is most urgent. A surprising percentage (about 70 per cent) have never heard of "socialized medicine." The survey is based on the assumption that the producers and the consumers of medical services can be most successful in their efforts to improve rural health if strictly scientific procedures are employed in determining the attitudes of the people and if the findings are publicized to both doctors and patients when the studies are completed. The study has cost over $12,000 thus far. We believe that this study when completed will prove of great scientific and sociologic value.

Information to Rural People.—During the past two years we have released 13,000 separate broadcasts over twenty-six different stations. There is no rural or urban area in the state which is not covered. These broadcasts are daily, five minutes long, and are devoted to scientific subjects of current interest. They are prepared and broadcast by a nationally known commentator in layman's words, and are checked for accuracy by doctors of medicine. We have spent $46,000 during the past two years in their preparation, but we have enjoyed the use of $240,000 worth of radio time, the balance being contributed in the public interest by the radio stations or commercial sponsors. Over 500,000 informational pamphlets have been distributed. A motion picture, "Lucky Junior," was prepared illustrating the advantages that the child of today enjoys over his parents, with emphasis on immunization. This picture cost $15,000, but it is being shown in four hundred commercial theaters.

Rheumatic Fever: Thirty rheumatic fever detection centers were organized, covering all sections of the state, to serve as diagnostic aids to referring physicians. A full time coordinator, a doctor of medicine, is in charge of this program. Over 4,000 patients have been referred to these centers by over five hundred doctors, and returned to the referring physician with consultation advice. The rheumatic fever budget is $55,000 this year.

Enrolment in Voluntary Prepayment Insurance.—Believing that voluntary prepayment insurance for hospital and medical costs constitutes the chief answer to the greatest problem in the medico-economic field for rural people, our Rural Health Committee requested opportunity for the rural people to enrol in our Blue Cross, Blue Shield insurance plans as individuals in communities, as well as in employed groups. Five hundred and eighty-three Farm Bureau groups and fifty-two Grange groups are now enrolled in Blue Cross, Blue Shield, in two-thirds of our counties. Total enrolment in Blue Cross has risen to 1,500,000 persons in the state. Blue Shield is not far behind, with over 1,300,000. The monthly expenditure in behalf of the subscribers by Blue Cross and Blue Shield is averaging $2,250,000, or $27,000,000 a year. The Blue Cross and Blue Shield are presently developing a statewide enrolment campaign during which any person in the entire state may secure prepayment insurance, thus obviating the chief objection to this type of insurance. One can visualize the time when the entire population of the United States, barring those on relief, may have voluntary prepayment insurance, covering the cost of hospitalization, surgery and obstetrics.

Summary.—In summarizing the activities of the Rural Health Committee in the one state about which I am able to speak, we have tried to meet and recognize the problems involved in the medical needs of rural people. We are aiming at their solution. We realize that we are far from our goal. To date we have instituted action in nine fields.

Such a program costs money, but we believe that medical societies and other organizations interested in the health of rural people should be willing to raise and spend funds—on their own initiative—for a cause which is obviously for the betterment of rural people.

When the rural people of America become sufficiently interested in their own problems to spend their own time, their own efforts and their own money to attempt to solve their own problems, without delegating that task to authority by remote control, we shall have more hope for the future.

Chairman Crockett: The next paper will be "Animal Diseases Affecting Human Beings," by Dr. H. B. Mulholland, of the Committee on Rural Health.

Animal Diseases Affecting Human Beings

Dr. H. B. Mulholland, Charlottesville, Va.: No attempt will be made to cover all the diseases occurring in animals which may be transmitted to man, nor will the field of diseases where animals may act as carriers or host be comprehensively covered. The most important conditions in both categories will be reviewed and measures outlined for their control, with emphasis on the necessity of close cooperation of physicians, veterinarians and farmers in decreasing and eradicating these various scourges.

Bovine tuberculosis will be reviewed as an example of the results obtained by cooperation between government, farmers and doctors. This type of the tubercle bacillus is of minor importance in causing tuberculosis in human beings in this country because of rigid control measures in cattle, whereas in European countries with less control a significant number of cases result from contact with the bovine type of organism.

Such diseases as equine encephalitis, rabies and tetanus constitute a group to which the rural population is constantly though infrequently exposed, and constant vigilance must be maintained in order that their spread be minimized.

Of interest is the type of influenza found in swine. Never described before the great 1918-1919 epidemic of influenza, the possibility of the human virus of influenza plus the influenza bacillus being carried over to swine is an intriguing theory.

In many rural areas, particularly those of the South, tularemia is of major importance in causing serious illness in human beings. While the wild rabbit is the principal vector, many other species have been known to carry the disease to human beings. Similarly, Rocky Mountain spotted fever may be a serious disease in many rural districts and, like tularemia, may be carried by many vectors other than the wood tick. Methods of control and treatment have advanced, and the discovery of new antibiotics seems of great import in their cure.

Ornithosis, an interesting disease of virus origin closely related to psittacosis, is found frequently in rural sections. The virus has its habitat in pigeons and barnyard fowl; a recent epidemic was found to originate in Long Island ducks. This disease may become of major importance to farmers. Fortunately, it is mild and responds to penicillin.

"Q" fever, first described in Australia, has broken out in this country, and is associated with the handling of cattle, being transmitted by ticks.

Brucellosis, more familiar to the farmer as undulant fever, caused by organisms causing contagious abortion in cattle, still remains one of the foremost problems in medicine today, causing untold suffering and economic loss both in cattle and swine and in human beings. The measures adopted for control of bovine tuberculosis have not proved satisfactory in lessening the incidence of this infection. Vaccination with type 19 is of value and isolation of infected swine helps. Unless the latest antibiotic, aureomycin, proves effective, the treatment of chronic human infection is discouraging.

Education of farm people in the fundamentals of transmission of these diseases in animals and man is paramount, and constant vigilance must be maintained, even though some of them are seemingly well under control, else they will break out afresh.

Liaison between the medical profession, farmers, veterinarians and government agencies must be continued in our attack on these and other diseases.

Chairman Crockett: The next paper will be "Environmental Hygiene," by Dr. Ernest L. Stebbins, professor of public health, Johns Hopkins University.

Environmental Hygiene

Dr. Ernest L. Stebbins, Baltimore: Healthful living depends on man's ability to accommodate himself to the many and varied factors in his environment. We are inclined to think primarily of physical environment as it relates to health, but it is becoming more and more evident that we must be concerned also with our social environment and its relationship to health. Health, as it was defined in the preamble to the constitution of the World Health Organization, is complete physical, mental and social well-being. This is a much broader definition than we are accustomed to and certainly our knowledge of the effect of environment on health is limited, primarily to our physical environment.

Man has struggled with his environment since the beginning of the human race and has found it possible to adjust himself to a wide variety of environments. In fact, there are few areas on the face of the earth where man cannot adjust himself to his environment sufficiently to live in a reasonably healthy state at least for temporary periods. Man has tended to settle in those areas in which environmental factors were most favorable to his healthy existence. This has not always resulted in the ultimate improvement of his condition. The concentration of population in the more desirable parts of the earth's surface may create new environmental hazards; in fact, the vast majority of environmental hazards in a civilized country are produced by man himself. This has necessitated setting up a program of environmental hygiene.

Housing.—One of civilized man's first interests is the provision for shelter against the elements. The type of shelter that he provides has a definite bearing on his health, even though it is extremely difficult to demonstrate a specific health hazard resulting from poor housing largely because of the association of other environmental hazards with poor housing. One of the greatest environmental hazards of poor housing is overcrowding. Another less frequently recognized hazard of poor housing is the frequency of accidents. Good housing should provide safeguards against these accidents.

Water and Sewage.—Most frequently transmitted by water are typhoid and diarrhea or dysentery. Prevention of the spread of these diseases by water requires either that the supply of water be amply protected against pollution by human wastes or that it be purified. In rural communities, individual water supplies cannot readily be purified by filtration or chlorination; therefore reliance must be placed on measures to prevent pollution of such supplies. In rural communities the majority of households are supplied with water from a well. The location of the well in relationship to the disposal of sewage or other human wastes is obviously of great importance. Not infrequently the planning for the location of wells and the disposal of human wastes requires technical knowledge and skill. The type of well and the type of sewage disposal that best fit a given location may require extensive study and knowledge. A properly organized local health department should be equipped to provide consultation and help to the home owner or builder and to provide assurance that the disposal of human wastes will be such that they will not endanger the home owner's own water supply or that of others. It is entirely possible to eliminate completely the environmental hazard of contaminated water, but, unfortunately, every year many residents of this country suffer from water-borne disease.

Food Supply.—Another essential factor in any environment is an adequate food supply, but food, also, may be a transmitter of disease. One of the most important foods and one which is particularly liable to transmit disease is milk. This may constitute an environmental hazard if the cows from which the milk is obtained are suffering from diseases that may be transmitted to man, or if the milk is so handled that it may be contaminated by human beings suffering from a disease transmissible through milk. The two diseases of cows most frequently transmitted to man are bovine tuberculosis and undulant fever. Both of these diseases have real economic significance to the farmer as well as representing a serious health hazard, but by the use of simple tests for the detection of these diseases and by the elimination of infected members of herds the rate of transmission to man has been greatly reduced and economic loss lessened. Milk from cows not known to be free from infection must be pasteurized in order to be safe or, if that is impracticable, boiled.

Not infrequently, certain infections of man may be transmitted to cows. Important among these are the streptococcic infections. This type of organism may be transmitted from the milker to the cow, producing disease in the cow that may not be apparent but which in turn may be transmitted to man through the milk. Constant vigilance on the part of the milker is necessary to detect such infections and avoid the possibility of transmission to man.

A serious but fortunately rare hazard in connection with food consumption is the disease known as botulism, a highly fatal disease contracted by eating food which has been contaminated with the organism and improperly canned. Prevention of botulism is largely a matter of education of housewives concerning the proper methods of home canning of foods. The organism is destroyed by proper heating, and safe methods of home canning have been devised.

Food may be contaminated with a variety of organisms which produce toxins or poisons if the food is kept for some time after cooking and is not properly refrigerated. Many of the common diarrheas result from this type of contamination of food. Prevention of these common diarrheas is accomplished primarily through the proper handling and refrigeration of foods not consumed promptly after cooking. It has been found to be a dangerous practice to leave unrefrigerated any foods that may have been handled subsequent to cooking.

A specific health hazard is involved in the eating of pork if not sufficiently cooked. Trichinosis is a food infestation transmitted to man by the eating of infested pork that has not been sufficiently cooked. It is not a highly fatal disease but produces a great deal of discomfort and disability. It can be readily prevented by thorough cooking of all pork.

Other Hazards.—There are other hazards in the environment of certain parts of the rural areas of the United States. One of the most interesting of these is Rocky Mountain spotted fever. It is known to have a rather wide distribution throughout the United States and is transmitted to human beings through the bite of a tick. The best means of avoiding this disease is to avoid tick-infested areas. A special vaccine has been developed which has been shown to be effective in preventing the disease.

Tularemia may be a hazard in the environment. Infection of man results from the handling of infected rabbits or other rodents or through the bite of a tick, flea or other insect which has been in contact with an infected animal. This disease may be avoided by keeping away from rabbits in infested areas or by careful handling of rabbits. Persons whose occupation requires that they handle rabbits that may be or may become infected should be protected by a vaccine.

One of the greatest hazards in the environment, particularly in the Southern states, is malaria. The prevention of malaria is such an extremely complex problem that it would be impossible to discuss it in this short period of time.

Our Nonphysical or Social Environment and Its Relation to Health.—It has been increasingly apparent that the sharp differentiation between physical illness and mental illness, which has so long been maintained, cannot be justified. The frequency of psychologic causes for disability often presumed to be physical has resulted in a new approach to medical problems, taking into consideration the psychologic and family background as well as the physical background of the individual patient. This has been called psychosomatic medicine. Moreover, it has been shown that many of the behavior problems of children, which all too frequently lead to definite mental disease, are preventable. There is growing evidence that the social environment, particularly the family environment, has a great influence on psychologic development. Our knowledge of this field is admittedly limited, but efforts are being made to recognize hazards in the social environment and to provide safeguards against these environmental hazards. Many health departments are now undertaking to develop safeguards against these hazards through the establishment of mental hygiene clinics for the diagnosis of the defects in the social environment and to provide simple means of preventing serious damage resulting from these social environmental hazards.

Mental hygiene has been defined as a technic which aids the individual in securing satisfactory mental and emotional adjustment to his environment. The evidences of hazards in the social environment may appear early—the so-called problem child is usually one with a behavior problem, one who has temper tantrums, does not get along well with other children or, in extreme cases, may show early signs of delinquency. Such a child may have a hazard in his social environment. Most frequently, this is not a problem of the child himself so much as it is a problem of his parents. There have been some most encouraging results where these problems were recognized early and through psychotherapy, particularly with parents, the cause of these difficulties has been removed. Not infrequently in the adolescent child more serious difficulties are encountered, leading to juvenile delinquency or mental disease. Careful study of such cases has led to the belief that a large proportion of those involved are subject to emotional or social environmental stresses with which they are unable to cope. Here again much of this is due to failure on the part of the parents to understand the child's problem. Often these problems of the social environment are also associated with some physical disability. There seems to be a great prospect for future accomplishment through the mental hygiene movement, eliminating many of the hazards of the social environment.

With few exceptions, in discussing the problems of our physical and social environment, the place of the health department in meeting these needs has been obvious. In meeting the needs of environmental hygiene, whether physical or social environment, the need for a well organized, functioning health department should be apparent. The extension of full time local health departments to that part of the nation not now served is imperative if we are to solve the problems of our environment.

Nutrition and the Soil

After a short recess Dr. Carl S. Mundy, vice chairman, introduced the next speaker, Mr. Glen W. Bunting, Manager of the Central Farmers Fertilizer Company, Chicago.

MR. G. W. BUNTING, Chicago: Comparing daily newspapers of fifty year ago with those of today reveals some interesting similarities; accidents, then and now, especially sudden disaster, are prime news. Fifty years ago the daily newspapers in Chicago gave no indication that food and health had any relationship—at least a casual checking of old papers does not reveal any public interest in the subject.

The actual problem of proper nutrition may not be materially different, but the ease of transportation has allowed many persons to make observations that stimulate their thinking on the subject. Driving through the northern counties in Florida, especially off the main highways, one is impressed by the sight of starving cattle walking in lush-appearing vegetation but lacking in the necessary minerals to give health. The rural people who produce most of their food from these infertile, sandy fields plainly indicate that malnutrition is not limited to Greece, China or India.

For purpose of contrast, let your mind travel into the semiarid West where vegetation is sparse but the cattle are in good flesh, with a healthy coat of hair and appear to reflect the optimum of proper nutritional diet. Likewise, the health of the rural people of that area reflects a better nutritional diet.

Dr. Abbott and associates found up to 85.2 per cent of rural school children (age 6 to 10) in Florida in 1939 were anemic, whereas a study by Wiehl and Kruse in 1941 found only 1.5 per cent anemic among 336 private school children in New York. It is apparent that proper proportions of iron, copper and cobalt are lacking in the daily diet of the children in rural areas of Florida.

A recent study by J. E. Steckel of Purdue reveals a widespread area in Northern Indiana where crops show definite starvation for manganese.

Cobalt, iodine, manganese and copper have been found necessary for control of the death losses of sheep in Northern Wisconsin. Is it not reasonable to assume that the health of rural people in the same area is affected by the same mineral deficiencies?

VICE CHAIRMAN MUNDY: Our next paper, "Health Education and Community Responsibility," is by Mr. Aubrey Gates, Associate Director of Cooperative Extension Work, College of Agriculture, University of Arkansas.

Health Education and Community Responsibility

MR. AUBREY D. GATES, Little Rock, Ark.: The object of the National Conference on Rural Health is to bring to rural America the kind of health service needed and desired in a manner that is in keeping with American ideals. The approach is necessarily through health education and community responsibility. Moreover, the approach is necessarily a program of action if any sort of solution is to be reached.

Health education and community responsibility are rather broad terms. There are two big educational jobs to be done in the field of health education. One is with the lay public. They must be made to realize what they can expect and what they can do both as individuals and as communities. We must take the lead, and everyone else must help. The other big job is with the medical profession. Each group must keep in a position to counsel and advise the other—but never to dominate and dictate.

An advisory committee was set up composed of representatives of the medical society, hospital association, University of Arkansas Medical School, state health department, the Arkansas Farm Bureau Federation and home demonstration clubs. We find that the whole problem of health education in a community is bringing together diverse interests in the whole undertaking; reaching an agreement, and developing a program along lines that will lead to ultimate solutions.

Adequate medical and hospital care will come as a result of study and discussion and of compromise. We have a great body of factual information, it is true. But health education is not an exact science and must be tempered by judgments and practical application.

Conferences on rural health have set the pattern for people to come together to discuss openly what they should do to provide their own needs and find ways of solving their own problems. If a satisfactory program for rural health facilities is not worked out by the people themselves—both the lay and the professional groups, it is a fairly safe assumption that one will be developed by an Act of Congress to be administered by the federal government. To me this is socialized medical care of the worst sort.

Our best argument against a legislatively provided medical service is the lack of information on what is needed by or acceptable to the people. Regardless of how well science and technology are developed, it is public understanding and continued practice that count. If medical service can be made available only by act of the national Congress, it is my opinion that we have made the first step toward completely controlled social and economic life and will have given up the right to take free action in this country.

Rural people know that something needs to be done for better health facilities. The medical profession surely knows that such a problem exists. The difficulty, it seems, is that we do not know where to take hold, or some of us are unwilling to do so.

Many advances are easy to overlook when we get into the heat of discussion of what we are going to do. But stop and think. The life span has been increased; twenty-five years ago it was only 35 years. Now it is 65. That did not just happen, and all of us know the reasons for it. The public's knowledge of sanitation and disease prevention, the skill and technical advancement of the members of the medical profession and many more things played a part. In the South nutrition, sanitation and disease prevention have been an important part of our extension education and farm organization programs.

For several years the Medical School of the University of Arkansas has been unable to locate a case of pronounced pellagra. Occasionally they find a case of subclinical disease for laboratory observation by the students. That is all. Disappearance of this disease is attributed to the education on nutrition that has been offered in recent years.

Almost everyone working in rural areas has done much on sanitation programs. Typhoid was greatly reduced even before immunization came into use, through safeguarding the water supply and screening against flies.

Much educational work has been done and real progress has been achieved on control of malaria. Recently in the Southern states whole counties have joined together to bring the public health service into homes with DDT spray equipment. The Arkansas Farm Bureau Federation and its affiliated county units have taken the leadership in sponsoring venereal disease clinics, with surprising cooperation and results. Both the state health department and the local physicians whole-heartedly cooperated in handling technical aspects of the clinics.

There have been outstanding successes with tuberculosis clinics, cancer clinics and well child clinics. These were the finest kinds of cooperation based on full understanding. That is the only way that they could have been successful. People have been made to understand fully their purposes, objectives and results in terms of personal and community welfare.

These are controversial questions: How will we meet the need of the "disappeared" rural doctor? How can we get one in his place? How is he to be paid? What kind of workshop can be made available to him? Why can't these questions be worked out like others—merely by bringing the discussion into the open and, through the people concerned, reaching an understanding of what is best to be done.

Much that could be done will not require a long or complicated educational program. For example: In one Southern state 26 per cent of the children born last year were without an attending physician. Yet in that state law does not require midwives to meet any standard. In the near future the state's legislature will probably pass a licensing law for midwives.

We need not stop at doctors and nurses. Laboratory technicians, sanitary engineers, and many other types of workers are needed. These should leave the rural community for training and return there for service. It is our job to show them the opportunity and the challenge. Communities have another responsibility: That of obtaining sufficient appropriations for adequate training facilities so that larger numbers can be enrolled and trained.

In Arkansas about 75 per cent of the hospitals are owned and operated by individual doctors or partnerships of two or more doctors. It is obvious that the young practitioner has not the financial resources to build and equip even a small plant. Some type of community action must be taken if this problem is to be met.

Developing an over-all hospital program in a state involves endless educational work and great community responsibility. Many of our doctors readily state that they do not want to own a hospital. They own them because they wanted to practice in the rural area but needed the facilities to carry on successfully. They built hospitals and bought the expensive equipment themselves. They said nothing to the public about this responsibility —neither did we. So, over the years rural people have looked on this as the proper and only way to have a hospital. They expected doctors to build hospitals, employ and pay for highly trained personnel, do the managing and all the practicing. All the public expected to do was utilize the service when needed. The whole thing now is too big for the individual doctor to handle along with his practice.

There seems to be a tendency in our section of the country for the general practitioner to give up his hospital and either join the staff of a nearby hospital or encourage the people to build or operate their own. This can be done with the assistance of the federal funds under Public Law 725. Before a state could participate in these federal funds it had to make a survey to show the need of additional hospitals and draw up a plan for a well integrated hospital system. A department of hospitals had to be created within the state government if none existed. These things have been done by all of the states, and all are eligible for federal funds. The principal purpose of the department of hospitals in most states is to supervise construction details and standards and enforce the hospital licensing laws.

The weakness of the program lies in the fact that the construction and operation of a complex institution is being turned over to an untrained and inexperienced public. This must be corrected. There is an urgent need for us to launch a full scale program of educating the community as to its responsibility, in properly incorporating this business institution, getting a board of trustees or governors free from political or personal bias, employing well trained management, avoiding large yearly deficits brought about by inferior management, and taking proper care of necessary operating deficits incurred by non-use. If costly mistakes are to be avoided in this or any other undertaking, we have a responsibility to see that we are working with all the facts we can obtain, in full faith and complete confidence.

Vice Chairman Mundy: Our last paper on the program, "The General Practitioner in Rural Practice," is by Dr. Ward Darley, Executive Dean, Health Sciences and Services, University of Colorado School of Medicine, Denver.

The General Practitioner in Rural Practice

Dr. Ward Darley, M.D., Denver: The National Conference on Rural Health is unique in that its participants represent both the consumers and the providers of medical service.

The increase in medical knowledge during the past twenty years has been phenomenal. Consequently, it should not be surprising that we are experiencing difficulty in translating this knowledge into effective action. The situation is complicated by the fact that the consumer group is well aware of the increased potentiality of medical care and naturally is actively interested in seeing that the best possible care is made more readily available. Many obstacles present themselves as far as the realization of this desire is concerned. The greatest of these are to be found in the uneven distribution of hospitals and diagnostic facilities and in the uneven distribution and actual shortage of physicians and other health service personnel. Further, without attempting to go into controversial details, it must be recognized that changes in our industrial, economic, social and political world are pressing on us from all sides, increasing the tempo of our lives, adding to the confusion of our environment and consequently making clear thinking and sound judgment difficult. All this is having a profound effect on all thinking and activity which is concerned either directly or indirectly with the maintenance of health and management of illness. The result is that there is a wide gap between actual medical knowledge and the type of medical care rendered.

It should be obvious that if progress is being made, a gap between what we know and what we do is bound to exist. The efforts which are being made to narrow this gap are simultaneously creating problems which are adding to our basic difficulties. It is inevitable that, as knowledge accumulates in any field, specialism and segmentation take place. Specialism has made it possible for the individual physician to become particularly adept in some one segment of medical practice and thus to pool his particular ability along with the particular abilities of other physicians to the end that a more effective and better balanced medical care may be made available to the consumer.

While it is true that the acquisition of scientific knowledge and the consequent development of specialism and the need for special equipment and facilities have brought us definite benefits, specialism, segmentation and their consequences are doing much to set aside and dilute the patient-physician relationship—the most important foundation stone of a satisfying type of medical care. In fact, I do not believe that medical care, no matter how superior it may be from the scientific point of view, can be truly effective unless the patient-physician relationship permits the physician to make the maximum use of his own personality as an agent of comfort and therapy. A system of medical care that passes the patient from specialist to specialist, that depends in a large measure on the services of nurses, interns, residents and assistants, that involves technicians and their paraphernalia and that takes the patient away from his home and frequently his community, of necessity becomes impersonal.

Specialism and "hospitalism" are not the only factors that are operating to impersonalize medical service. Good roads and comfortable and rapid means of transportation have influenced doctors to concentrate in localities far removed from many of their patients; the patient therefore must more and more come to the doctor instead of the doctor's going to the patient. This, while doing much to increase the efficiency of our doctors as far as the number of patients that they can see in a day is concerned, is wrecking havoc with the patient-physician relationship because of the necessary cut in time per patient.

The health services in schools, universities, business and industry offer a very impersonal type of medical care. Most health service for the indigent is impersonal in its approach. Finally, I submit that any type of medical care insurance, whether it be voluntary or otherwise, tends to be impersonal because the usual two way patient-physician responsibility is diluted by the entrance of a third party—the insuring agency.

Chancellor Robert M. Hutchins of Chicago University in a recent statement strikes at the core of the situation by saying: "Specialization is essential to the increase of our knowledge. . . . But specialization does not facilitate the comprehension of knowledge: it is not likely to show us the interrelations among facts and ideas in various specialized fields."

Dr. Wingate Johnson, speaking from this platform one year ago, expressed this same idea in more practical terms when he said: "The same factors creating the need for specialists are creating the need for men trained to guide patients through the maze of modern medical care."

If a general physician is to assume the role of a "general manager" in our system of medical care, what is the ideal way in which he might function? Briefly, I feel that he should be in a position to function as a health counselor or coordinator from birth to death. In order to function effectively in this manner he must also be in a position to render preventive, diagnostic and therapeutic services consistent with the average person's average needs.

Medical care of tomorrow will undoubtedly place great stress on the personal as well as the community aspects of preventive medicine. The practice of personal preventive medicine will have comprehensive implications. In addition to the usual immunizations and efforts to instil the commonly accepted principles of personal hygiene, a working understanding of mental hygiene and clinical psychiatry will be essential. I believe that the greatest single challenge in the field of preventive medicine today is in the area of emotional and personality-determined illness. The exertion of intelligent influence on the individual, particularly during the early years of his life, and on the family of which he is a part, can do much to prevent the full blown neurotic conditions which constitute or complicate about 50 per cent of the average physician's practice. The preventive idea must embrace the recognition and adequate treatment of the early neurosis. It is unreasonable to expect psychiatric specialists to care for all of the psychiatric needs of our people. Ideally, the family physician is the one who first will see the average patient needing psychiatric guidance. By virtue of his knowledge of the patient and his environment, he is the one in the best position to render the most effective service. This general physician, however, must be well enough trained to recognize his limitations and thus know when the services of the psychiatric specialist are needed.

Almost all of these remarks can be applied in principle to the relationship of the general physician to the fields of pediatrics and internal medicine. Maximum effectiveness in the early diagnosis of medical and surgical conditions will be essential. This is a large order, particularly if a patient with suspected disease is to be kept under observation without being subjected to unwarranted anxiety and expense.

What I am saying is that the general physician should be the one to continue at the helm during and after any episode of illness so that he can do his utmost to prevent complications in the home and to prevent relapse, sequel, chronicity or disability in the patient. If chronicity or disability for the patient are inevitable, he should be the one to help the patient and the family to make the most of any remaining assets, develop others and steer the patient to and through a program of rehabilitation.

With the increase in the average life span of our citizens, the medical profession will be called on more and more to cope with the problems of the aged. Here early diagnosis, particularly of malignant or degenerative disease, will deserve diligent consideration. The medical care of the aged will always be complicated by conditions requiring the attention of the physician who has a working knowledge of both psychiatry and medicine. Obviously, the family doctor should be qualified to deal with these problems.

If general physicians are to cope with the preventive, diagnostic and therapeutic aspects of psychiatry, pediatrics, internal medicine and possibly surgery and obstetrics, and at the same time keep themselves in a position so that they can keep their services adjusted to the needs of their individual patients and communities, it should be obvious that their period of training must be just as long, just as expensive and just as carefully planned as that for any of the specialties.

There is much evidence that our general practitioners are already making an effort to rise to the occasion. Their demands for postgraduate opportunities are almost exceeding our ability to supply and their philosophy is rapidly adjusting itself to a broad, positive point of view. I believe that the general practitioner of today can most easily adjust himself to both the needs of today and of the immediate future. In line with this, my contact with general practitioners leads me to feel that they are making an honest effort to recognize their limitations and that their use of specialists is becoming very intelligent and reasonable.

It must be recognized that today many obstacles exist which are detrimental to the effectiveness, sense of security and self respect of our general practitioners. Many of our physicians, some specialists, some general practitioners, feel that the general practitioner is outdated and in time will disappear. Unfortunately, many of our citizens seem to hold the same point of view. I believe that searching thought about the background of American medicine and the things that are essential to a satisfying type of medical care will discourage any one from holding to such convictions. Careful consideration in the right quarters should do away with hospital staff discrimination against the general practitioner. By the same token, such units in our society as the armed forces, Veterans Administration, civil service, insurance companies, industry and medical schools, should cease to use board certification as the chief basis for the grading of its physicians and thereby automatically freezing the relatively lower status of the general practitioner, no matter how capable or effective he may be.

I feel that most of what I have been saying can be taken as applicable to almost any type of community in our country. I believe that a general physician should be the backbone of urban as well as rural practice.

In conclusion, I should like to reiterate: I believe that if the need and desirability of individualized physician-patient and physician-community adjustment is kept in mind, a general physician is the logical one to coordinate our plan of medical care. Further, I believe that a general physician's services should play an important part in the medical services offered to any type of community. If we compare the present relative needs of urban and rural communities, I believe that both the qualitative and quantitative needs of the latter are the greater. And finally, I believe that given a reasonable period of time—time for the construction of facilities and time for the education of personnel—the health needs of our rural communities will be worked out in a substantial and effective manner.

Saturday, February 5

Chairman Crockett: The meeting this morning is for the purpose of receiving the reports of the panel sessions of yesterday afternoon. The policy of these conferences has been that no vote is taken. We do not go on record by a vote of any sort as to the opinions expressed by the panels. The panels are independent agencies who have heard the testimony of all of you who cared to contribute, and in turn have gotten together and formulated their conclusions as to the sentiment expressed. We adopt the general attitude that we confer here and report largely those things which fall within the areas of agreement rather than to spend our time on debatable things which are probably not yet ready to be settled. If we can make a little progress once a year in coming here, gaining better knowledge of each other and of each other's intentions, we are approaching a common working solution to many of our problems.

Section chairmen will be asked in their rotation to come forward and present the findings of their panels, and then there will be a short period for additional remarks but those remarks do not have to be answered.

Committee on Cooperative Health Programs for Rural Areas

Mr. Chester Starr, Chairman: Our section divided the discussion into two parts: The local health council and the local health unit are so closely associated that they were discussed together; however, we had to make a definition because apparently a number in the conference were somewhat confused as to the difference between the two. A health council is an unofficial voluntary body of a number of persons who come together for the purpose of discussing, surveying and making plans for the improvement of health in the area. The local county unit or department is an official body, often performing a part of the state health department's duties in the state; it is officially charged with certain responsibilities by the state.

From the observations, it would appear that the majority of the people attending the conference thought that the membership in the health council should be voluntary, possibly made up of individuals rather than simply on an organizational basis. It should have something to do. If a health council does not have something to do or, in other words is not built to delve into problems and plan the solution of problems, it soon dies.

This section recommends that the National Conference on Rural Health go on record as urging that every local area establish a voluntary over-all coordinated health agency such as a health council or health committee. It further recommends the complete coverage of the nation with full time local health units in the belief that it is fundamental to the effective functioning of all health programs. This point of view has been set forth by other conferences, notably the House of Delegates of the American Medical Association at its intermin session in St. Louis, the Section on Local Health Units of the National Health Assembly and the National Advisory Committee on Health Units of the National Health Council. One of the primary objectives of a health council may well be the attainment of local health units where they do not exist and the strengthening of existing ones.

This section is in agreement with the present efforts of state and territorial health officers, the National Congress of Parents and Teachers and many other national organizations in supporting, in principle, legislation that is designed to attain the objectives of full time local health units coverage for the nation.

Cooperative Hospitals.—All hospitals other than proprietary hospitals are fundamentally cooperative in character in that they represent the coordinated efforts, both in construction and operation, of the government, health professions, private philanthropy and consumer interests. Regarding this as a reasonable concept of a cooperative hospital, we believe, will lead to less heated discussions and more constructive thinking and effort.

This section recommends that Congress be requested to extend the time of the operation of the Hill-Burton federal aid to ten years and to increase the appropriation from $75,000,000 each year to $150,000,000.

This group further holds that to build hospitals to supply all the nation's people with adequate medical facilities and to eliminate existing shortages, government grants-in-aid are necessary. Teamwork is required between rural and urban people, city, county and federal governments and the health professions.

DISCUSSION

Mrs. Dora Barney, Oklahoma City, Okla.: I should like clarification on the discussion on the cooperative hospitals. The impression that I got this morning was that perhaps everyone was against cooperative hospitals. I think that the difficulty was that many in the group were confused and associated cooperative hospitals with national health insurance and, putting those two together, were against the cooperative hospitals as well as national health insurance.

Mr. Eugene Butler, Dallas, Texas: We have about a dozen cooperative hospitals in Texas, and I believe that they are making a real contribution to the improvement of the rural health problem, and it seems to me that this body is making a serious mistake when it fails to endorse a program of this sort. Local people are getting together to solve their own health problem. It is about the only possible way that the problem can be solved and, personally, I am much distressed that this group has taken an attitude that there is any connection whatsoever between cooperative hospitals and socialized medicine. I am thoroughly convinced that the cooperative hospital is one step that will prevent what you doctors are pleased to call socialized medicine. It is one way that we can avoid socialized medicine.

Dr. John A. Ferrell, Raleigh, N. C.: In the discussion yesterday there was some difference of opinion as to the definition and exact meaning of the so-called cooperative hospital. The Hill-Burton Law makes provision for assistance to publicly owned hospitals and to nonprofit hospitals. If the so-called coordinated hospitals are nonprofit, they would not be excluded. Would it not be in the interest of clearness to indicate, instead of the term cooperative hospital, publicly owned and non-profit, hospitals, as stipulated in the Hill-Burton Law, and for which, in most states, state and federal aid are available?

Dr. Dean A. Clark, New York: The issue that was discussed in yesterday afternoon's session has not been made entirely clear. The controversy arose over the fact that in a number of places where cooperative hospitals have been attempted physicians who desire to associate themselves with such hospitals have found that they have been frowned on by the medical societies. It was the wish of many of us at the session that the American Medical Association would use its good offices to assist and encourage its state and local constituent societies to accept the cooperative hospital idea and not to discriminate against physicians who chose to participate in such hospitals.

Mr. C. C. Bair, Columbus, Ohio: I represent the Ohio Farm Bureau. The leader of our conference yesterday left the impression that a cooperative hospital, that any hospital could be described as a cooperative hospital because, in almost every case, there is a working together, a joining of government funds, and philanthropic donations and private working funds. Those of us who are in the cooperative would like to challenge that definition of a cooperative. A cooperative, basically, is the application of true democracy to an economic enterprise, which a hospital basically is. You have to have capital and you have to have a board of directors. You have to have management, and the determining factor to us in the cooperative movement is who basically is supplying the capital and, more than that, who governs it. In a true cooperative the people of the community, the consumers, each have one vote and have the right of choosing the management and choosing the staff.

Mr. Ray Miller, California: Mr. Chairman, may I ask you a question? I am a walnut grower from California. What is the definition we are discussing? Is cooperative mentioned specifically in your report or not?

Mr. Starr: We did not wish to discriminate in defining hospitals, but we did feel that this should be pointed out, and this is the definition, or rather it is the report submitted.

"All hospitals other than proprietary hospitals are fundamentally cooperative in character in that they represent the coordinated efforts, both in construction and operation, of the government, health professions, private philanthropy and consumer interests."

Mr. Miller: I think that your definition, wherever you got it, is about 75 per cent wrong. Government sponsorship, government control, private philanthropy and so on, all have their place, but they are not a part of what we commonly speak of as cooperatives. A cooperative is not different from the Associated Press and most of us know it. The Associated Press is the greatest cooperative in the world. Cooperatives are definitely a part of the American private enterprise system, and it is one of those things that can keep local control in local communities. It is the direct antithesis of statism.

Chairman Crockett: Each panel chairman will have two minutes to make any explanatory remarks that he wishes.

Mr. Starr: We did not think that we would encounter the rather strict definition that some sitting here are thinking when we say the word "cooperative." When we drafted that particular statement, we had in mind setting forth that except for proprietary hospitals and such hospitals as are operated purely by the government, no one benefits from the operation of these hospitals except the consumers. Hospitals do not make money. Most of them run a deficit, and that deficit has to be met by either private subscriptions once or twice a year, by campaigns or, if they are state or county or municipal hospitals, by public taxation. We felt that there was criticism of hospitals such as was mentioned by the gentleman from Texas and that the criticism was coming from people who had actually thought the thing through, that a hospital is for the benefit of the consumer, and other than proprietary hospitals, no one receives any income on any investment that might be made or contributed. It appears that we ran into difficulty possibly because of the jealousy of some groups in defining the word "cooperative." We hoped that our definition would clear the fog around the word and get more persons thinking of the true characteristics of all hospitals other than those operated for proprietary reasons.

Committee on Environmental Hazards

Dr. D. G. Miller, Chairman: Our conference was divided in three parts, and we will give our report in that way.

One of the contributions of the veterinary profession to public health is the control of diseases of animals communicable to man. At present, there are some seventy to eighty known diseases of this type. Additions to this list are being made constantly. Just recently, a member of the staff of Ohio University definitely established that Newcastle's disease in poultry infects human beings.

The veterinary profession takes great pride in the work of reducing the incidence of tuberculosis to less than 0.5 per cent in the cattle population in this country. This means that we have practically eliminated the incidence of tuberculosis of bovine origin in the population in America. However, we must not become too complacent; so long as a vestige of the disease exists, there is a distinct possibility of its again becoming a public health menace. The disease in cattle is on the increase. We cannot, therefore, relax in our program of regular retesting to keep the disease under control.

Brucellosis is perhaps of the greatest importance from the standpoint of public health. This is a disease which affects dairy cattle, swine and goats. The two forms of the disease which are most important from the standpoint of public health are those which affect swine and dairy cattle. The brucellosis of goats has not assumed any great importance in this country, and there have been only a few outbreaks of the disease from goats in the southern part of the United States. Farm people and those drinking unpasteurized milk are the ones most commonly exposed to the disease from cattle; while the swine disease is a result of packing house workers and farm folks handling diseased hogs.

The program of reducing the public health hazard is related to the control of disease in animals. This is directly dependent first of all on a sound educational program to inform the public of the dangers attending this disease in order to stimulate precautions by all the people concerned and the elimination of the disease from the farm herds and flocks. Many with ordinances require pasteurization of milk but allow unpasteurized milk in the use of butter, cheese and ice cream. The program has been held up to some extent as a result of inadequate federal services, which we feel will be corrected in the near future. Regular testing and the elimination of infected animals from all flocks and herds will be an important step in the control of this public health hazard, along with milk ordinances and pasteurization of all milk or milk products consumed by human beings. Perhaps even that fed to farm animals should be pasteurized.

Rabies results in so much anxiety and cost for the administration of prophylactic treatment to the large numbers of persons exposed that it is a serious public health problem. England and the Scandinavian countries have eliminated rabies from their boundaries and have maintained them rabies-free through a program of proper quarantining of dogs. In this country, the work has been hampered by a few misguided persons posing as dog lovers who refuse to have any restrictions placed on the dog. At present, we have all the means at our disposal for controlling this disease through proper quarantining and the vaccination of dogs and could greatly reduce and possibly eliminate the disease from this country. Since it has been established in wild life, a new program aimed at control of this disease should be placed in the hands of the public health groups, Bureau of Animals and the Wild Life Service, cooperating in a program of total eradication.

The second part of our discussion was on farm accidents. There are annually 18,000 accidental deaths among the farm population. Over 25 per cent of the accidental deaths in the United States occur among agricultural workers. The death rate among agricultural workers is exceeded only by the mining and transportation industries; 7,000 of these are caused by traffic accidents, and this number is on the increase. Six thousand, five hundred are home accidents, largely due to falls. Four thousand, five hundred are actually due to the farm work and are accompanied by 225,000 serious injuries each year. A large number of farm accidents have been shown to be caused by a removal of guards and safety devices or a disregard of elemental safety.

Our conference suggests: (1) that this problem may be in part solved by an organization of all the people interested in reducing this number of injuries and deaths to coordinate a farm accident program; (2) that there is a great need for research into the details and patterns of farm accidents so that exact information may be obtained; (3) that we must employ more safety technics, and (4) that we must embark on a comprehensive educational plan including schools, 4-H, the Farm Bureau and the Grange and all similar groups.

The third discussion involved environmental sanitation. In rural United States, statistics show that we have done well with environmental disease control since 1900. Since then, disease rates have levelled off and do not show as strong a downward trend as is desired by public health authorities, physicians and farm leaders.

It is the advice of this group that more emphasis should be placed on research in rural health sanitation problems; development of adequate water supplies and satisfactory means of chlorinating the individual well supply, and coordinating the planning of small villages so that adequate sanitary facilities will be provided. The four fundamental requirements for health and welfare of the people may be itemized as (1) water supply, (2) disposal of excreta, (3) food and (4) housing. It is emphasized that none of these may be obtained if disposal of excreta is inadequate. Chemical measures offer a temporary and poorly accepted substitute for environmental sanitation. If you do not believe that, try to persuade the teacher to stir some sodium hypochlorite solution or some other form of chlorination in her bucket of well water and see how far you get.

Decline in death rates of certain diarrheal diseases is due to better therapy, resulting in a shorter duration of the diseases and decrease in spread of infective fecal material, as well as the improved therapeutic outcome. This we do not feel to be due to the use of DDT, which Mr. Urey would like to make us believe.

DISCUSSION

Dr. Stuart A. Adler, Albuquerque, N. M.: I think that we have passed the stage where we take better care of farm animals than we do of our children. We ought to move that up to the point where we are saying that farm people take as good care of their children as they do of their stock. The next time that we meet we may be able to surpass it.

Dr. C. H. Lerrigo, Topeka, Kan.: Senator Capper is keenly interested in health matters. The point that I wish to make is that you do not advertise yourselves sufficiently through contribution of articles to your home papers and to your farm papers especially. No doubt this group numbers readers of *Capper's Farmer*, readers of the *Kansas Farmer*, readers of the *Missouri Ruralist*, readers of *Ohio Farmer*, of *Michigan Farmer*, of *Pennsylvania Farmer*. Every one of these papers would welcome this material that you are discussing this morning. Those are things that I think will advance your work tremendously.

Chairman Crockett: I want to thank the doctor for calling attention to the thing that has been often discussed in our committee meetings. It is a hope that sometime we may do our part, at least, by contributing a health column or note or contribution sponsored by this health committee to various farm journals. However, those things are difficult to work up and have acceptable; it is a field of journalism with which we are not too familiar.

Committee on Health Education—Individual and Community Responsibility

Dr. Roger Corbett, Chairman: One of the most important things that I can do is to report on the discussion method that Mr. Miller of Michigan followed. The whole group was divided into ten small groups. We had about one hundred persons, and so we had about ten persons in each of these groups. Each of these groups were to decide on the question which they wished the whole group to discuss. They were also to choose a spokesman. Then Mr. Miller brought them back into the group as a whole and for about an hour, these questions were presented and discussed. Mr. Miller then directed us back into the smaller groups with the suggestion that we bring out something on how to get a good job done in this field, and to choose a representative as a member of a panel for the whole group.

These are the ten questions that the ten groups presented to the whole section: 1. How to make rural communities health conscious. Who will take the leadership? How is action to be obtained? 2. What is the need for research and study on health and medical needs? How are the health problems determined? 3. What should we emphasize in a health program? What are some of the common objectives of a health program? 4. What are effective ways of solving health problems? Once that we know the problem, how do we meet it? 5. How do we interest members of the community not members of organizations? What percentage of the population belongs to some organization? 6. How can we effectively reach the underprivileged group of our community? 7. Is compulsory vaccination and immunization of all a good thing? Can one legislate good health in a community? 8. How can we coordinate the interested groups in the community? Who will take the responsibility? Who will assume the leadership? How is the domination of a single group prevented? 9. How can we make health a male as well as a female responsibility? In one state, it was reported that the men felt that health was the responsibility of women alone. 10. How can we develop concern? How can we interest an organization? How can we arouse individual interest in health problems?

Then we had a panel discussion. We have summarized all this discussion under two headings: motivation, and mobilization and organization.

We came to the conclusion that motivation was one of the most important things. It was suggested that the "pocketbook" is always a motive. Good health influences income among farmers.

A specific desire is that of boys and girls to excel in sports. Good health and posture are essential to success in sports.

As a part of this first step, get the various organizations acquainted. Obtain decisions as to what are the main problems. When you have the problems clearly set out develop a systematic plan for publicity based on facts.

One thing that interests all parents is the number of school days that are lost by children because of sickness. Use success stories—what other counties have done that has been successful means something. Enlist the cooperation of the schools. Make use of health problems as illustrations in teaching. Take advantage of opportunities presented by crises, such as floods and epidemics.

The last main heading is mobilization and organization. How can we get organizations and individuals who do not belong to organizations together? Interviews with persons scattered all over the area appear to be the only means. Maintain a strong line of contact between the health council if that is what you are setting up, your health committee, and these community organizations.

The members of the health council or the committee should be made up of actual representatives of the community organizations, not chosen from the top but chosen by the organizations themselves. Participation is a key means of developing organization and maintaining interest.

Getting together is a start; working together is progress; staying together is success.

DISCUSSION

Dr. D. G. Miller, Morgantown, Ky.: The thing that I should like to suggest on the enlisting of the cooperation of schools in health education is the heart of the student's health grade. It depends on: (1) whether he had the examination required by the state department of education; (2) whether or not he attempted to correct the defects found in that examination, and (3) whether or not he had all of the immunizations that were offered either by the county health department or by individual physicians.

Mr. D. E. Lindstrom, Urbana, Ill.: There seems to be a conflict in thinking between group number one and this group in the organization of a county health council. The first group implies that it should be made up of individuals primarily rather than by organization representation. This group indicates that one should maintain strong and persistent contacts with the organizations of which the health council is made up. I should like to take a middle ground in that there is a place both for organizational representation and strong individuals on this health council, and therefore avoid that kind of conflict.

Committee on The General Practitioner in Rural Practice

Dr. Franklin Murphy, Chairman: Our panel did not organize itself in a streamlined fashion as the previous one did.

The panel represented all phases of medical activity including the producer, the purveyor and the consumer of medical service. The bulk of the three hour session was devoted to participation by the members of the audience.

Certain areas of agreement were rather clearly reached.

1. Full agreement was reached that there is a dearth of physicians in rural areas and that a real problem exists.

2. There was apparently universal agreement that this unfortunate situation was the responsibility of the medical profession and the rural citizenry. The resolution of the problem depends on joint interest and action on the part of both the physician and rural citizens. Health is not just the province of the physician, but in fact depends on unanimity of purpose by both the physician and the consumer; i. e., the community.

3. It seemed clear that the general practitioner or family physician is recognized as the crucial person in the provision of an adequate and effective rural health program. The responsibility of schools of medicine to redignify the family physician and to put him in his proper position as the crux of our over-all health problem was discussed with full agreement.

4. Wherever efforts have been made to provide adequate postgraduate training for the general practitioner, increasing numbers of young men have evidenced their interests in this type of practice. If we provide at the undergraduate level as well as at the postgraduate level opportunities for continuing professional improvement, more and more men and women will be directed into the channel of family practice.

5. The general public is somewhat confused about the apparent limitation of the number of persons who can be trained to practice medicine. It has been suggested that this is a self imposition of artificial standards on the part of the profession to keep the numbers of practicing physicians down to the economic betterment of the medical profession. It was pointed out that the standards of medical education which limit the numbers of persons who can study medicine are established for the protection of the people rather than the physicians and that, in fact, today all existing medical schools are operating at full capacity and that any increase in the number of medical graduates will come only by the provision of more adequate training facilities with associated increased operating budgets. There was complete unanimity that whenever and wherever increased production is demanded, it be accomplished with the maintenance of existing standards of medical education.

6. Essential services are in many instances provided by the facilities of a hospital. Outpatient operations of hospitals may not have been explored as widely as possible. Postgraduate or continuing medical education is in many instances most easily accomplished in and around the hospital. The point was made that the professional activities associated with the hospital call for constructive participation by the physician.

7. Wherever possible, cooperative efforts on the part of two or more physicians are desirable. Solo practice puts too heavy professional as well as social limitations on the individual. Practice of medicine in rural areas on a regional basis with helpful expert consultation appears to be increasing throughout the country. Its success depends on strict understanding on the part of the patient, the family physician and the specialist that there is a normal chain of medical service and that in all instances the patient will seek advice from the family physician first and that the latter will continue to maintain contact with his patient throughout the period of consultation if such is needed. The satisfying medical experience that such a relationship provides is immediately broken down if the family physician is by-passed, either by the patient on the one hand, or by the specialist-consultant on the other.

8. In various parts of our country productive and fruitful efforts are being made by the medical schools, the medical profession and the patients as represented by various lay groups. Members of the medical profession must intensify their efforts in the field of lay understanding of the problems of medical education and practice. The laymen present at our meeting seemed to feel that definite progress is being made in the resolution of these problems. The democratic way of mutual citizen-cooperation will continue to solve these problems without the application of all-inclusive and artificial formulas.

DISCUSSION

Dr. Roy Fouts, Omaha, Neb.: Having spent more than ten years in general practice, and all of that time in a small community or small town, and having been close to general practice or rural medicine, I have been in constant touch with the problems of the rural community and of the general practitioner or the country doctor. The problem of rural practice, or the need in rural medicine, is not going to be answered or does not lie in getting more physicians. I have always contended that we have enough doctors providing we had a proper distribution of those doctors; and it has been shown by a rather recent survey by Dr. Dickenson with which you are all familiar, I am sure, that we have more doctors at the present time than we had in years gone by. It was mentioned by the panel chairman that the responsibility was first of the doctor and then the community; later he did touch on the responsibility of our medical institutions and colleges. I think that their responsibility is just as great. Some medical schools are starting on a program requiring at the end of the sophomore year, or junior year, that two or three months be spent with a general practitioner as a preceptorship in a rural community. Many of the men will find out things about rural practice and about the country that they never knew before. They will find things that they will like. They will find opportunities. A great many of them, through formal association with the older man, will want to return. The standard of medical practice among the general or rural physicians is decidedly higher than it is among the general physicians in our cities. I believe that our medical schools have an obligation to teach and train and instil in their students the idea that there are opportunities in general practice or rural practice. Providing this preceptorship following sophomore or junior years will lead more men into rural practice.

The doctor who graduates from the medical school and immediately starts his internship and his residency with the idea of being a certified specialist without any general practice has lost a lot. He never becomes a real rounded-out doctor and does not become even a good specialist in many instances.

Chairman Crockett: Dr. Fouts is Vice-President of the American Medical Association. He speaks with authority.

Dr. Walter E. Vest, Huntington, W. Va.: In West Virginia we are hoping within the next few months to launch a program whereby interns and residents may go out into the rural communities for one or two months as an aid to physicians and still get credit for that service. The Attorney General in the state has recently ruled that the Public Health Council can do that. The Public Health Council with the aid of the Council of State Medical Associations and the hospitals of the state expect to try to put it into effect. We hope that will do something in stimulating men to find out just what is in rural practice in West Virginia and turn more and more in that direction. West Virginia is largely a mining state, and we are putting on this plan to relieve the men in the mine positions.

Dr. J. L. Caughey, Cleveland, Ohio: I should like to take up the challenge of one of the preceding speakers who put considerable responsibility in the hands of the deans of the medical schools in respect to the distribution of the graduates of those schools. I believe that idea erroneous. Distribution of physicians is determined largely without reference to anything that the deans may do or say while the students are in school. We cannot even tell them where to go for their internship, and what happens in their internship has a great deal to do with what they will do after they have finished their first year or two of graduate training. It seems to me that our students will not go into rural areas to practice medicine if they believe that the only thing that they have to look forward to is ten years of drudgery before they can go to a bigger city and be specialists. If they are going to go into the rural areas to practice medicine, it is going to be because of their interest in people, because of their desire for the close, continuing relationship of the family physician with his patients. We can try to instil that interest. In the selection of persons for medical school, we may find persons more emotionally fit for that line. But they will not go out into small communities to practice unless they find working conditions which they consider suitable. They will not go unless their wives are satisfied to go with them and find in the community something in the way of educational opportunity and social opportunity which will be satisfying. The medical schools do have a great responsibility in developing in the students the interest in the patient which is a necessary ingredient in rural medicine, but distribution depends on economic and social factors which are far beyond the control of the medical schools. The solo practice of medicine in rural areas is a strong deterrent to our students in seeking such a career. They know that within two or three years they will be working sixteen hours a day seven days a week, and none of our graduates seem to want to do that any more. Maybe they used to, twenty-five years ago, but they don't now. Some kind of associated practice, is absolutely necessary if our modern graduates are to be persuaded to go into rural practice.

Dr. W. L. Pressly, Due West, S. C.: This subject has been close to my heart over a period of thirty-two or thirty-three years as a family doctor in a small area, and I feel hopeful of the situation. The problem can be solved by the medical profession and its allied associates. A doctor should not attempt to practice alone. He separates himself from his family to which he has a responsibility and from the responsibility of his church and his school. If Dr. "A" likes pediatrics, for example, allow him to look after the children. I have through the years had associates some of whom after a few years thought they would like to get into a specialty, and many of them have. The medical profession must never lose sight of the fact that we have a direct responsibility to the people, and we must rededicate, if a rededication is necessary. I think we must never lose sight of this direct responsibility for the health and happiness of our people.

DR. W. E. BARSTOW, St. Louis, Mich.: There is one point that I think would be of interest and perhaps be of benefit to our lay members of this group, and that is the question of night calls. We hear throughout the country the complaint that our younger men will not get up and make night calls. In my early days of practice, the question of night calls was a bugbear. We were called out night and day and we had that to contend with all the time. In our locality, we have educated the population to the effect that a doctor does need some time to sleep and some time with his family. Most of the people, if they stop to think about that, will confine themselves to necessary night calls and emergencies. Now we do not have so much trouble. It is more a matter of thoughtlessness than it is of selfishness with the people—they think they can call a doctor when they like and they used to do it. That used to be the sentiment, but it is changing now, since they realize that their men are overworked. I think with a little work from our lay members among their localities that practice will be largely eliminated and, when it is, the younger men are going to be more willing to go into the country.

CHAIRMAN CROCKETT: Often when night calls are made the physician finds that it is someone that he never heard of before. It leads to the suggestion that if our lay people would urge on their groups that every family, while well, should select some doctor and advise him that they wish to be included in his group of families, so that he may look them over and know what their health assets and liabilities are when he is not hurried; then when they call him in the middle of the night he knows that he is dealing with one of his families for whom he has accepted responsibility. It would help to simplify the matter a great deal.

REV. V. A. EDWARDS, Nashville, Tenn.: I represent the rural ministry. They tell me that misery likes company, and when I hear the doctors and the discussions with reference to a reluctance on the part of the doctors and the responsibilities of the medical schools and that sort of thing, it seems to me that I am in a similar discussion where the rural ministers are also reluctant to serve in the country. A study is now being made of the number of resident ministers in the National Baptist Convention. To date that number is 10 per cent of the churches in the denominations being served by resident ministers. We are making the same plea for ministers to serve in rural areas. The attitude of wives about going to these areas is equally important in the ministry.

DR. MURPHY: We doctors are ridiculed because we talk about the human aspect of medical practice, the doctor-patient relationship. It ought to be perfectly clear that when we talk about the doctor in the community and his concern with his patient and the fact that there must be community cooperation and there must be understanding on the part of communities about night calls and schools, that we are talking about an intimate relationship, health, of wife, children and husband. If we are to get doctors into rural areas, we will provide a milieu, an environment, which will draw that doctor. We will provide an orientation which will direct him. We will work with the communities and they with us to provide him with the tools to do the job, and then you will get doctors in rural communities just as you get teachers and all the rest. If you try to legislate this problem, you will do nothing but produce continuing difficulty which in turn will have to be legislated, and in the end you will have a legislative strait jacket which, in the last analysis, will harm the consumer much more than it will the physician. Consumers are the ones whose health and lives are in jeopardy. I, as the dean of a medical school, refuse to press young men to go into areas where they will be pawns in the hands of older men. It must be a helpful, cooperative attitude on the part of the older man, and I want to make it clear right here that in ninety-nine instances out of a hundred it probably is; but let us among ourselves be honest and discipline ourselves about that 1 or 2 or 3 per cent and make it clear on the county, state or national level that we will not permit that. I agree with the assistant dean of Western Reserve University that we certainly have our responsibilities for orientation and direction. We will maintain an effort to increase our effect. I will freely admit that we have fallen down in the past perhaps, but I say that we cannot do it alone and that the medical profession on the one hand must encourage, must make it possible for these young men when they come out in the rural areas to function effectively and that lay persons, in addition to that, must recognize that doctors are human beings, that they cannot be moved around even by them like pawns on a chessboard. There is no excess of physicians in Kansas City, Kan. There is no excess of physicians in Wichita. There is no excess of physicians in Topeka—the largest cities. From where I sit, there is a shortage of physicians. In Kansas, we propose to increase our graduating class but without any compromise with medical training standards. If you feel, on the basis of your advice, consultation, wherever it be, in whatever part of the country, that an increased production is needed, then you have a deep obligation to support the medical educator's attempt not to permit standards to be lowered and to fight effectively for increased facilities and the necessary operating budget to run those facilities effectively.

Committee on Nutrition and the Soil

DR. W. L. ALBRECHT, Chairman: That good nutrition goes back to more fertile soil is still a new concept to many. It has not yet engendered fixed opinions and points of view inviting sharp divisions into groups or camps sponsoring one or more kinds of specific group action. The concept is just starting to grow, to be considered, and to be studied. The session of this section was therefore one of educational effort and study more than of resolutions and recommendations for specific action of any group of society.

Good health depends on the state of nutrition more than on anything else. In turn, nutrition depends on the quality of food. Food can, of course, be spoiled in the harvesting, storing, processing, selecting, cooking and serving, but good food can come only from soil supplying all the essential elements and compounds necessary for providing energy and for growth and repair of our bodies.

Plants synthesize the many complex organic and inorganic compounds by which we live. Carbohydrates, for energy service are synthesized on almost any soil. Carbohydrates, proteins, vitamins and all other food essentials are synthesized more completely on the fertile soils delivering essential elements. Provision of proteins is the major food problem, because bulk has become the criterion for agricultural output. A new criterion is needed. Food values as proteins and associated qualities for body building and reproduction rather than bulk delivery are better criteria, but call for more fertile soils.

There is the suggestion that national patterns of human ailments made from records of inductees into the Army might show a relation to the pattern of soil fertility. Declining soil fertility (soil exhaustion) is bringing carbohydrates into prominence, while proteins and other essentials in our food are less common. Conservation of the soil and its fertility are basic to health conservation.

Education concerning the soil as well as our health is needed. Farming is a complexity of many sciences, and education is a requisite for successful farming. Education is needed to help the farmer improve his own health via better nutrition in terms of more fertile soils and better farming of them. We have too long been ignorant of what fertile soils can do.

The farmer, in many instances, is compelled by economics to mine his farm and throw not only the fertility of his soil, but the health of himself and his family, into the bargain for the privilege of being a farmer. He makes no charge for the soil fertility in the goods he sells. According to the concepts controlling income taxes, and those of other taxation procedures, soils cannot be depreciated. Exhausted soils prohibit rural living from offering much attention to health. Under such distorted economics other essentials must be considered first and health last. Poor soils do not invite medical service, just as they do not invite other advantages. Rebuilding the agricultural creative power by rebuilding the soil will rebuild rural health just as better soils brought to the country rural electrification, better sanitation and other advantages through the farmers' own efforts before the days of national rural electrification.

That the subject "Nutrition and the Soil" should find sponsorship by the American Medical Association in a national conference deserves special recognition and commendation, to say nothing of encouragement for future repetition. It represents an approach of positive nature to the health problem and one on a broader base with preventive as well as curative efforts in prospect. Let us hope that through this broader scope more help will be enlisted for better health to more people through education and their own efforts to keep it and to get it through better nutrition by way of better stewardship of our soils.

DISCUSSION

Dr. W. L. Burnap, Fergus Falls, Minn.: I feel that we should not pass by this matter of Dr. Albrecht's without a word because it is of tremendous importance. We know the importance of fertilization. I have been interested in farming a little myself, and I know that it pays to fertilize, but I never got a conception of the fact that one may get a good crop without having the mineral elements there. Dr. Albrecht's reprint should be studied.

Dr. Albrecht: Just a brief remark about the reprint. You might write to the College of Agriculture at the University of Missouri, Columbia, Missouri, for the circular entitled "Our Teeth and Our Soils." It is the reproduction of what I brought yesterday except for the deletion of one or two paragraphs necessary to set it up as a circular.

LUNCHEON MEETING, RURAL HEALTH, FEBRUARY 5

Dr. Crockett, Chairman of the Rural Health Committee of the American Medical Association, introduced the members of the Rural Health Committee to the audience, and then introduced the speakers, after which he expressed thanks to the staff members who had worked on the entire meeting. Dr. Crockett stated that Dr. Sensenich, who was to have appeared on the program, had been called to Washington, D. C., and hence was unable to attend the meeting. He then introduced Dr. Elmer Henderson, Chairman of the Board of Trustees.

Address of Dr. Elmer L. Henderson

Dr. Elmer Henderson, Louisville, Ky.: We are indeed grateful to the Committee on Rural Health for the wonderful work that they have been doing the past few years. We are also grateful for the rural groups that have participated in these meetings. I have attended these meetings the past four years. Every one of them seems a little better than the one before.

I was much impressed by the eleven point resolutions that were passed here yesterday afternoon. They insure, if put into effect, that the rural communities will really have an adequate medical service. I wish to assure you that the officers and members of the Board of Trustees of the American Medical Association support that program 100 per cent.

We are especially anxious to solve the rural problem, and if given time we are going to solve it. We realize your problems. I was raised on a hill farm in Kentucky, and I know a great deal about rural life. We are just as anxious to solve your problems as you are yourself. We know that we can solve them better than any governmental agency regardless of what it is.

It has been my lot for the past few years to travel in a great many countries. I have traveled in practically all the European countries except those back of the iron curtain. I know what any form of governmental medicine is. Whenever politics steps into medicine, medicine begins to deteriorate, and it deteriorates rapidly. That is what we do not want to happen to you—the rural areas or any other areas of the United States.

It was only a short time ago that a man who graduated in medicine did not feel his education complete until he had gone to Europe and spent two or three years. Within the past two years, I have been in Europe four different times. Medical education in Europe is practically nil today, and that is just what will happen to the American people if medical education and medical service are administered under any political organization. That is the reason why we are endeavoring to do everything we can to bring about the proper medical service to all the American people.

It is unfortunate that a great portion of the public cannot understand the doctors' point of view. The majority of the lay people feel that doctors are interested purely from a mercenary standpoint. That is not true. The American Medical Association has been fighting for the great American public. That is what we intend to continue doing.

Address of Dr. W. L. Pressly, M.D., General Practioner of the Year

Dr. W. L. Pressly, Due West, S. C.: May I be permitted, as I begin this talk, to express to the American Medical Association my appreciation of the honor bestowed upon me. I accept it in the spirit of humility, recognizing that it is an honor that has come, not to me personally, but to me as a representative of 130,000 general practitioners. To be the representative, even for a short time, of this company *of splendid men gives one a feeling of great responsibility.* I assure you, it shall be my constant endeavor to use, to the best of my ability, privileges which this honor brings me in furthering the great work of the American Medical Association.

And now I want to express my pleasure in being permitted to be present at this conference. Twice before I have had this privilege and I wish most heartily to congratulate Dr. Crockett on his eminent success in this undertaking. His efforts have made a noteworthy contribution to the solution of the problems of rural health.

During the last decade rural medical care has become the real problem of our profession. It was in recognition of the seriousness of this problem that the officers of the American Medical Association organized the Conference on Rural Health. Personally, I believe that the health and happiness of the rural people is a definite responsibility of the medical profession. We must accept the challenge or suffer the consequences.

When the structure of rural life—I am thinking especially *of the farming people—is jeopardized, the American way* of life is seriously threatened. When a young man is making his choice of a place in which to live and work and rear a family, he will certainly want to know what he may reasonably expect in the way of medical care for himself and his family. The American doctor owes this young man the positive assurance that, whether he chooses the large metropolitan center or the small town or the remote rural district, full medical care will be provided.

The efficiency of our fighting men in the late war, so often remarked upon, can be definitely traced to the fact that they received the very best that medical care could provide. In like manner, our rural areas demand the best in hospital and *medical care if they are to continue to supply the food and* clothing upon which the health and prosperity of our nation depend.

Primarily, this planning and care should be done by the doctors. However, I would not be understood as underestimating the valuable aid by various organizations interested in rural community life and health such as the Grange, Farm Bureau Federations, and similar organizations. During former meetings of this conference, I have been greatly impressed by the constructive thinking and plannig of representatives of such groups. By united effort, not only the problem of *health but* also those of a social, educational and religious nature will receive the attention and emphasis they rightly deserve.

Having been engaged in rural practice for the past thirty-two years, I have witnessed a most gratifying change in rural medical care as regards contagious and infectious diseases. Typhoid, diphtheria, smallpox and malaria have all but been eradicated. Good roads and modern transportation have brought medical care within easy reach of most people. I feel that the Hill-Burton Bill has done much to encourage young men to locate in the smaller towns and rural areas. However, we should not slacken our efforts, for "there remaineth yet very much land to be possessed."

Just here I cannot refrain from saying a few words on my pet theme. No doctor should plan to enter on medical practice alone. It has been my observation that when doctors organize to do group practice they carry forward their work with greatest satisfaction to themselves and greatest benefit to their patients. By this statement, I am not referring to a group of specialists associating themselves together, but to general practitioners seeking to give to their communities the best medical care of which they are capable. Back in *1941, when chairman of the section on general practice* of the Southern Medical Association, I reported that 85 per cent of the patients could be intelligently and skilfully treated by a group working together—the other 15 per cent to be referred for special study to specialists in the fields of surgery, eye, ear, nose, throat, etc. Recent investigations and surveys have revealed that the percentage is even higher than 85 per cent. Much more might be said but time does not permit.

The medical profession must ever keep uppermost the thought that ours is a life of service. It is a service that constantly demands self denial, self sacrifice and hard work. But from this path there can be no turning aside, if we would hold fast the ideal, "Not to be ministered unto, but to minister." In this path the great men of our profession have walked. Today they summon us to face, with courage and devotion, the tasks and problems and opportunities which constitute our high calling.

Doctor Crockett: We have asked Mr. J. O. Christianson, Superintendent of the School of Agriculture of the University of Minnesota and Director of the Agricultural course at that University, to speak.

Address of Mr. J. O. Christianson, Superintendent of the School of Agriculture

MR. J. O. CHRISTIANSON, Minneapolis: Dr. Crockett, I am glad to come from Minnesota to speak of the work being done by the School of Agriculture and Public Health, Blue Cross, Farm Bureau and Blue Shield in the voluntary field. This is not an experiment in a voluntary program. Seventy-five thousand farm people joined together on a voluntary program. It seems to be accepted as a general program.

Sometimes we find that when a group has long been condemned, they rise up and speak for themselves. I want to pay tribute to this great association that gives service to Americans; also service in this rural health conference. Gradually we are educating the public to understand.

I will make a few comments on the reports. Building of hospitals: Local people should build their own facilities. Teachers do not build the public schools. They are built by the community. Build hospitals on that basis and do not quibble as to the cost. There is too much quibbling about definitions while more and more objectives are being forgotten.

Sweden has eight thousand athletic clubs. No wonder Sweden took first place in sports. They have a living program. We are beginning to turn responsibilities over to institutions. It is the duty of the school to train our young people and give them character. Little by little we are abdicating our own responsibility, showing the American kind of democracy that I observed in the countries in Europe. People look more and more to the general practitioner. There is a tendency to turn our problems over to one group and to blame them if things do not turn out satisfactorily. I have indicated the fine state of affairs in the State of Minnesota, where rural health has been given attention through the medical school, the state public health department and farm organizations. We feel in Minnesota that we are making significant progress. Families make connection with doctors before the time of immediate need. It is a program of education. Our extension program in Minnesota is emphasizing this as they will all over the nation. Get people to make contact before it becomes an emergency. That is a problem of education. It takes some time to develop this program. The general philosophy of prepayment health insurance is sound. I do not believe in the paternal philosophy. I think this country grows strong through people's having faith in themselves, in God and in their country. My father and mother came from a foreign land and appreciated the opportunities they had. We lived because of that faith in that country. We grew out of that great home. He felt it was the most important thing of this nature. People are civilized only so far as they can plan ahead. We make provision for the future. The savages lived from day to day. A good test of the social standard of a nation is the interest shown in handling our problems ourselves.

The point of downward turn in past civilizations was when people started to lose faith in themselves and looked for central powers to take care of their problems for them. Modern civilization would be destroyed if the things we take for granted, the rights of individuals, were destroyed. The threat of civilization of the world today is the changing of life values entailed by government doctrines in the medical practice and hospitals. It is the faith in people, it is the mental courage we need to come to again. We must remember it is not so much what belongs to us that determines our destiny, as what we belong to. We must remember that this government cannot be centered in any one person or one place alone. It rests as it should in each person and community. Nothing can take the place of people's belief in themselves and their own organization

CHAIRMAN CROCKETT: I want to take this opportunity in the last two moments of this conference to thank you who have come and contributed of your experience and wisdom to the panel sessions, to those who entered into the program yesterday morning; the Committee on Rural Health of the American Medical Association and the farm resources people who have come to us from the agricultural departments of our agricultural colleges have helped us to make this not a doctor convention, not a lay convention, but a well rounded conference in which we try to have all the elements affecting the problem of rural health represented and represented freely.

Each year these conferences seem to be getting a better response, and as long as that continues, as long as you people show by your attendance and your participation that you think it is worth while, I assure you that we will continue with the program.

Coming Medical Meetings

Alabama, Medical Association of the State of, Montgomery, April 19-21. Dr. Douglas L. Cannon, 519 Dexter Ave., Montgomery 4, Secretary

American Association for the Study of Neoplastic Diseases, Washington, D. C., [illegible] Dr. Eugene R. Whitmore, 2139 Wyoming [illegible] D. C., Secretary.

American Association of Anatomists, Philadelphia, April 13-15. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

American Association of Genito-Urinary Surgeons, White Sulphur Springs, W. Va., Greenbrier Hotel, May 9-11. Dr. Norris J. Heckel, 122 S. Michigan Ave., Chicago 3, Secretary.

American Association of Industrial Physicians and Surgeons, Detroit, Book-Cadillac and Statler Hotels, April 5-9. Dr. Edward C. Holmblad, 28 E. Jackson Blvd., Chicago 4, Managing Director.

American Association of Pathologists and Bacteriologists, Boston, April 15-16. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Association of the History of Medicine, Lexington, Ky., May 23-24. Dr. Benjamin Spector, 416 Huntington Ave., Boston 15, Secretary.

American Association on Mental Deficiency, New Orleans, Hotel Roosevelt, April 27-30. Dr. Neil A. Dayton, Box 51, Mansfield Depot, Conn., Secretary.

American Broncho-Esophagological Association, Chicago, Drake Hotel, April 18-19. Dr. Edwin N. Broyles, 1100 N. Charles St., Baltimore 1, Secretary.

American College of Allergists, Chicago, April 14-17. Dr. Fred W. Wittich, 423 LaSalle Medical Bldg., Minneapolis 2, Secretary.

American Dermatological Association, Hot Springs, Va., May 23-26. Dr. Louis A. Brunsting, 102 Second Ave. S.W., Rochester, Minn. Secretary.

American Goiter Association, Madison, Wis., Hotel Loraine, May 26-28. Dr. Thomas C. Davison, 478 Peachtree St., N.E., Atlanta 3, Ga., Secretary.

American Industrial Hygiene Association, Detroit, Book-Cadillac and Statler Hotels, April 5-7. Dr. Henry F. Smyth Jr., 4400 Fifth Ave., Pittsburgh 13, Executive Secretary.

American Laryngological Association, New York, May 16-17. Dr. Louis H. Clerf, 1530 Locust St., Philadelphia, Secretary

American Laryngological, Rhinological and Otological Society, Chicago, Drake Hotel, April 18-20. Dr. C. Stewart Nash, 277 Alexander St., Rochester 7, New York, Secretary.

American Orthopedic Association, Colorado Springs, May 18-21. Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secretary.

American Orthopsychiatric Association, Chicago, Stevens Hotel, April 4-6. Nina Ridenour, Ph.D., 25 W. 54th St., New York 19, Secretary.

American Otological Society, New York, May 18-19. Dr .Gordon D. Hoople, 713 E. Genesee St., Syracuse, N. Y., Secretary.

American Pediatric Society, Atlantic City, May 5-6. Dr. Henry G. Poncher, 1819 W. Polk St., Chicago 12, Secretary.

American Physiological Society, Detroit, April 19-22. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Executive Secretary

American Psychiatric Association, Montreal, Canada, May 23-27. Dr. Leo H. Bartemeier, General Motors Bldg., Detroit 2, Secretary.

American Society for Clinical Investigation, Atlantic City, May 2. Dr. Paul B. Beeson, Grady Hospital, Atlanta 3, Georgia, Secretary.

American Society for Experimental Pathology, Detroit, April 18-22 Dr. Frieda S. Robscheit-Robbins, 260 Crittenden Blvd., Rochester, N. Y., Secretary.

American Society for Pharmacology and Experimental Therapeutics, Detroit, April 18-22. Dr. Harvey B. Haag, Medical College of Virginia, Richmond 19, Secretary.

American Society for Research in Psychomatic Problems, Atlantic City, Chalfonte-Haddon Hall, April 30-May 1. Dr. Sydney G. Margolis, 714 Madison Ave., New York 24, Executive Secretary.

American Society of Biological Chemists, Detroit, April 17-22. Dr. Otto A. Bessey, 1853 W. Polk St., Chicago 12, Secretary.

American Surgical Association, St. Louis, April 20-22. Dr. Nathan Womack, University of Iowa, Iowa City, Secretary.

American Urological Association, Los Angeles, Hotel Biltmore, May 16-19. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secretary.

Arizona State Medical Association, Tucson, May 8-10. Dr. Frank J. Milloy, 15 E. Monroe St., Phoenix, Secretary.

Arkansas Medical Society, Little Rock, April 14-16. Dr. William R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Association of American Physicians, Atlantic City, May 3-4. Dr. Henry M. Thomas Jr., 1201 N. Calvert St., Baltimore 2, Secretary.

California Medical Association, Los Angeles, May 8-11. Dr. L. Henry Garland, 450 Sutter St., San Francisco 8, Secretary.

Connecticut State Medical Society, New Britain, State Teachers' College, May 3-5. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.

Federation of American Societies for Experimental Biology, Detroit, April 18-22. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Secretary.

Florida Medical Association, Belleair, April 10-13. Dr. Robert B. McIver, 111 West Adams St., Jacksonville, Secretary.

Georgia, Medical Association of, Savannah, Hotel De Soto, May 10-13. Dr. Edgar D. Shanks, 478 Peachtree St., N.E., Atlanta, Secretary.

Hawaii Territorial Medical Association, Honolulu, May 5-8. Dr. Harry L. Arnold Jr., 510 S. Beretania St., Honolulu, Secretary.

Illinois State Medical Society, Chicago, Palmer House, May 16-18. Dr. Harold M. Camp, 224 S. Main St., Monmouth, Secretary.

Iowa State Medical Society, Des Moines, April 18-21. Dr. Allan B. Phillips, 406 Sixth Ave., Des Moines 9, Secretary.

Kansas Medical Society, Topeka, May 9-12. Dr. D. D. Vermillion, 512 New England Bldg., Topeka, Secretary.

Louisiana State Medical Society, New Orleans, May 5-7. Dr. P. T. Talbot, 1430 Tulane Avenue, New Orleans 13, Secretary.

Maryland, Medical and Chirurgical Faculty of the State of, Baltimore, April 26-27. Dr. George H. Yeager, 1211 Cathedral St., Baltimore 1, Secretary.

Massachusetts Medical Society, Worcester, May 24-27. Dr. H. Quimby Gallupe, 8 Fenway, Boston 15, Secretary.

Medical Library Association, Galveston, Texas, April 10-14. Miss Mildred R. Crowe, Medical College of Alabama Library, Birmingham 5, Ala., Secretary.

Minnesota State Medical Association, St. Paul, Municipal Auditorium, May 9-11. Dr. B. B. Souster, 496 Lowry Medical Arts Bldg., St. Paul 2, Secretary.

Mississippi State Medical Association, Biloxi, May 10-12. Dr.. T. M. Dye, Box 295, Clarksdale, Secretary.

National Tuberculosis Association, Detroit, May 2-6. Dr. H. Stuart Willis, 1790 Broadway, New York 19, Secretary.

Nebraska State Medical Association, Omaha, Hotel Paxton, May 2-5. Dr. R. B. Adams, 416 Federal Securities Building, Lincoln 8, Nebraska, Secretary.

New Jersey, Medical Society of, Atlantic City, Hotel Ambassador, April 25-28. Dr. Earl L. Wood, 315 W. State St., Trenton 8, Secretary.

New Mexico Medical Society, Roswell, May 5-7. Dr. H. L. January, 221 W. Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, Buffalo, Hotel Statler, May 2-6. Dr. Walter P. Anderton, 292 Madison Ave., New York 17, Secretary.

North Carolina, Medical Society of the State of, Pinehurst, The Carolina, May 9-11. Dr. Roscoe D. McMillan, P. O. Box 232, Red Springs, Secretary.

North Dakota State Medical Association, Minot, May 14-17. Dr. O. A. Sedlak, 702 First Ave. S., Fargo, Secretary.

Ohio State Medical Association, Columbus, April 19-21. Mr. Charles S. Nelson, 79 E. State St., Columbus 15, Executive Secretary.

Oklahoma State Medical Association, Tulsa, Mayo Hotel, May 15-19. Mr. R. H. Graham, 210 Plaza Court Bldg., Oklahoma City, Secretary.

Rhode Island Medical Society, Providence, May 11-12. Dr. Morgan Cutts, 106 Francis St., Providence 3, Secretary.

Society of American Bacteriologists, Cincinnati, May 15-20. Dr. John Blair, Hospital For Joint Diseases, New York, Secretary.

South Dakota State Medical Association, Yankton, May 22-24. Dr. Roland G. Mayer, 22½ S. Main St., Aberdeen, Secretary.

Southeastern Surgical Congress, Biloxi, Miss., May 23-26. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Ga., Secretary.

Southern Branch, American Public Health Association, Dallas, Texas, Baker Hotel, April 14-16. Dr. George A. Denison, 600 S. Twentieth St., Birmingham, Ala., Secretary.

Southwest Allergy Forum, El Paso, Texas, Hotel Paso del Norte, April 4-5. Dr. O. E. Egbert, First National Bank Bldg., El Paso, Secretary.

Tennessee State Medical Association, Chattanooga, April 12-14. Dr. W. M. Hardy, 706 Church Street, Nashville 3, Secretary.

Texas, State Medical Association of, San Antonio, May 2-5. Dr. Harold Williams, 700 Guadalupe St., Austin, Secretary.

Western Association of Industrial Physicians and Surgeons, Los Angeles, Hotel Biltmore, May 7. Dr. Christopher Leggo, Crockett, Calif., Secretary.

Medical Legislation

STATE LEGISLATION

Delaware

Bill Introduced.—S. 263 proposes the creation of a **State Board of Sterilization.** Three members of the board must be physicians.

Illinois

Bills Introduced.—H. J. R. 19 proposes that the board of trustees of the University of Illinois be urged to take into particular consideration **the rural areas** in which sufficient doctors are not now practicing to maintain the high standard of health to which all of the residents of the state are entitled in considering applications for admission to the College of Medicine of the University of Illinois to the end that a definite preference be shown to the residents of needy areas who express at the time of their application an intention to return to their home communities upon completion of their medical course. H. 246 proposes the creation of a commission to make a thorough study of the laws relative to the care, treatment and training of **feebleminded, mentally ill and epileptic persons** for the purpose of ascertaining needed changes therein.

Indiana

Bill Enacted.—S. 103 has become Chapter 205 of the Laws of 1949. It requires every physician or oculist to report to the state board of health every person diagnosed by him as being **blind or having visual impairment** of a degree sufficient to normally interfere with such person's ability to earn a livelihood.

Iowa

Bills Introduced.—H. 301 proposes the repeal of **the basic science law** and the enactment of provisions which would require the independent examining boards to examine applicants in the basic science subjects in lieu of the previously existing basic science board. H. 530 proposes to amend the **law relating to coroners** so as to require coroners to be licensed practioners of some one of the healing arts. S. J. R. 6 proposes the creation of a special committee to make a comprehensive study of the statutes of the state dealing with **the matter of public health** and the functions of the State Department of Health for the purpose of ascertaining any necessary changes affecting the public health and any advisable changes in the functions, duties and practices of the State Department of Health for the greater protection of the public health in the state.

Kansas

Bill Introduced.—H. 255 proposes certain amendments to the law regulating the practice of **osteopathy.** Among other things the term "osteopathy" throughout the act is changed to read "osteopathic medicine and surgery," the osteopathic board is required to examine applicants in bacteriology, pharmacology and materia medica, and surgery with instruments, in addition to other subjects, and licentiates of the osteopathic examining board would be granted the right to use or apply any therapy or modality calculated to assist or aid a body injured or afflicted with physical or mental infirmities in effecting its own cure or the use or application of such agencies in restoring the normal condition of the body, including, but not by way of limitation, surgery with instruments and medicinal substances when indicated.

Maryland

Bills Introduced.—H. 460 proposes the creation of a **state board of naturopathic examiners** and defines naturopathy. S. 329, to amend the law relating to the practice of medicine, proposes that applicants for a license who **graduated from a college in a foreign country,** the entrance requirements, standard of education and requirements for graduation of which are equivalent to the standard defined by the Association of American Medical Colleges or the Inter-collegiate Committee of the American Institute of Homeopathy may be admitted to the examination. S. 331 proposes that **one student from each county** and legislative district of Baltimore City who shall comply with the entrance requirements shall be educated free of charge for tuition and laboratory fees by the Medical School of the University of Maryland and shall be paid the sum of $500 per year toward living expenses. Before accepting such scholarship, however, applicants must sign a pledge in writing that they will practice medicine for two years in the county or city from which they are appointed.

Minnesota

Bills Introduced.—H. 1090 proposes to make it unlawful for any female human being to submit to the act or operation of **artificial insemination** or for any person to perform the act or operation of artificial insemination upon any female human being or to assist, aid or abet any person in the performance of such act or operation, or to donate, contribute or collect semen therefor. A child born by means of artificial insemination where the husband has expressly or impliedly consented thereto, however, shall be deemed legitimate. H. 1092 proposes to authorize a married woman to submit to the act or operation of **artificial insemination** when the husband of such woman has consented, when the woman certifies in writing that she is voluntarily submitting thereto, when the physician performing the act has made a thorough and complete physical and mental examination and found (a) that conception by sexual intercourse is improbable; (b) that the woman is not afflicted with syphilis or with any disease that might be communicated to a child; (c) that both husband and wife have sufficient mental and emotional stability to indicate that the welfare of each and the child would not be adversely affected; (d) that the donor is not afflicted with syphilis or any disease that might be communicated to the child; (e) that the blood of the donor and donee is compatible, and (f) that the donor (when not the husband) resembles the husband in physique, appearance and temperament and is of the same race. H. 1300 proposes to permit the state department of health to suspend or **revoke a hospital's license** for refusal by the hospital to admit any person in medical extremity and in need of emergency care solely for the reason that the licensed physician in attendance is not a regular member of the hospital staff, if facilities are then available. S. 831 proposes to authorize the state live stock sanitary board to license institutions desiring to obtain **impounded animals** for purposes of scientific investigation.

New Hampshire

Bill Introduced.—H. 480 proposes the creation of a commission for the study, treatment and care of inebriates which shall be known as the **commission on alcoholics.** This commission would study alcoholism and its problems, including methods and facilities available for care, custody, detention, treatment, employment and rehabilitation of persons who are inebriates.

Tennessee

Bills Introduced.—H. 865 proposes certain amendments to the **workmen's compensation act** among which is the provision that an employer shall designate a group of three or more reputable physicians or surgeons from which an injured employee shall have the privilege of selecting the operating surgeon or attending physician. S. 475 proposes the creation of a state **board for licensing clinical laboratory technologists** and defines a clinical laboratory technologist as a person who engages in the work and direction of a clinical laboratory. A clinical laboratory technician is defined to mean a person other than a physician and surgeon who, under the direction of a clinical laboratory technologist or a physician and surgeon performs the technical procedure called for in a clinical laboratory.

Texas

Bills Introduced.—H. 416 proposes to declare it to be a monopoly, and contrary to public policy, for any two or more persons, physicians or hospitals to prevent any other licensed physician from visiting patients in such hospitals or performing operations or giving medical attention therein, from refusing admittance to any hospital of any person licensed to practice medicine in the state, from refusing to permit patients in the hospital the right to the services of a doctor of their own choice, and from entering into any agreement to remit, **split fees** or revenues or make what is known in the trade as **cut-backs.** H. 499 proposes the enactment of a **hospital licensing law.** H. 517 proposes to prohibit the acceptance of **any type of rebates** by persons engaged in any licensed occupation or profession within the state.

West Virginia

Bill Enacted.—H. 134 was approved Feb. 26, 1949. It makes general amendments to the medical practice act, including the creation of a **medical licensing board** and the right to make use of the injunctive process to enforce the provisions of the act.

Wisconsin

Bills Introduced.—A. 334 proposes that no person shall perform any medical, surgical or chemical investigation, experiment or demonstration **on any living dog or cat.** A. 407 proposes that a child born to a married woman by means of **artificial insemination** with the consent of her husband shall be deemed the legitimate, natural child of both the husband and his wife for all purposes. S. 358 proposes the enactment of a **hospital licensing law.**

GOVERNMENT SERVICES

ARMY

NEW POLICY CONCERNING RESERVE COMMISSIONS

With the approval of the Advisory Council of Medical Consultants of World War II, the Surgeon General announced March 7 the policy of the Medical Department in regard to grade on recall and assignment of reserve officers. It was stated that in recognition of obligations assumed by these officers in accepting reserve and National Guard commissions they should receive priorities over officers newly appointed from civilian life when both have equal professional qualifications. It will be the policy in giving final approval of the grades to which civilian personnel are to be commissioned in the Medical Department because of a national emergency to take consideration of the fact that many of these civilians have not had military experience and have not taken part in the reserve and National Guard programs. The Advisory Council, which is a special committee of the Society of Medical Consultants of World War II, unanimously endorsed these policies.

NEW REGULAR MEDICAL OFFICERS

The following physicians have recently been commissioned in the Regular Army Medical Corps:

Rank	Name	Address
First Lieut.	Archibald M. Ahern	Webster Grove, Mo.
First Lieut.	John C. Baber Jr.	Little Rock, Ark.
First Lieut.	Dexter T. Ball	Santa Ana, Calif.
First Lieut.	Hugh M. Cardullo	Brooklyn
Major	Jeremiah A. Dailey	Madison, N. J.
First Lieut.	John A. Duggan	New York
Capt.	Robert O. Emmett	Lake Charles, La.
Major	Gordon F. Fisher	Corpus Christi, Texas
First Lieut.	William A. Graber	Chicago
First Lieut.	William Hausman	Worcester, Mass.
Capt.	Delbert W. Hess	Tucson, Ariz.
Major	Charles W. Hoffman Jr.	Baltimore
First Lieut.	Rudolph M. Jarvi	Detroit
First Lieut.	Richard G. Johnson	Louisville, Ky.
First Lieut.	Arthur E. H. Knox	New York
First Lieut.	Franklin M. Lockwood	Kansas City, Mo.
First Lieut.	David N. Marine	Rehoboth Beach, Del.
First Lieut.	Elwin W. Midgley	Union, N. Y.
First Lieut.	Arthur J. Moseley	Augusta, Ga.
First Lieut.	Joseph G. Murphy	Taunton, Mass.
First Lieut.	Merrill F. Nelson	Alexandria, Va.
First Lieut.	Robert E. L. Nesbitt Jr.	Baltimore
First Lieut.	Lester L. Nienhuis	Ann Arbor, Mich.
Capt.	Max W. Pegram	Tupelo, Miss.
First Lieut.	George W. Pogson	Pittsburg, Kan.
First Lieut.	Irvin L. Schweitzer	Naperville, Ill.
First Lieut.	George W. Shannon	Washington, D. C.
First Lieut.	Leon Stutzman	Baltimore
First Lieut.	Gilbert A. Varnell	Cleveland, Tenn.
Capt.	John W. White	Washington, D. C.
First Lieut.	Forrest J. Woodman Jr.	Peoria, Ill.

MEDICAL CONFERENCE IN TOKYO

At a medical conference at the 361st Station Hospital in Tokyo, Japan, February 23, among the speakers were the following consultants from the United States: Drs. Verne R. Mason (internal medicine), Los Angeles; Byron Smith (ophthalmology), New York, and A. A. Liebow (pathology), New Haven, Conn. Lieut. Col. C. F. Tessemer, M.C., spoke on "Studies Concerning Atomic Bomb Casualties"; Capt. W. R. Gabbert on "Psychosomatic Problems from the Internists Viewpoint"; Capt. M. Reisch on "Basic Principles and Treatment in Dermatology"; Lieut. A. L. Cohen on "Diagnosis of Common Skin Disorders"; Captains R. S. Johnson and J. A. Pennington on "Tuberculosis Among Japanese War Criminals"; E. A. White, Ph.D., on "Problems in Toxicology," and D. B. McMullen, Sc.D., on "Animal and Bird Schistosomiasis." A buffet supper and dance was held at the Officers' Club after the meeting.

OFFICERS ACCEPTED FOR ADVANCED TRAINING

The following Medical Department officers have been accepted for advanced training by the civilian schools and hospitals indicated:

Name	Institution	Subject
Col. Henry S. Murphey	University of Colorado Medical School, Denver	Poliomyelitis
Lieut. Col. Augustus A. Hall	University of Colorado Medical School, Denver	Poliomyelitis
Lieut. Col. James E. Tate	University of Colorado Medical School, Denver	Poliomyelitis
Lieut. Col. Albert W. Shiflet	St. Louis University School of Medicine, St. Louis	Orthopedic surgery
Lieut. Col. George H. McShatko	Shriners Hospital for Crippled Children, San Francisco	Children's orthopedics
Lieut. Col. Martin A. Compton	Medical College of Virginia, School of Medicine, Richmond	Internal medicine
Major William S. Dandridge	University of Colorado Medical School, Denver	Poliomyelitis
Capt. Harry M. Henderson Jr.	University of Colorado Medical School, Denver	Poliomyelitis
First Lieut. Morton C. Creditor	Goldwater Memorial Hospital, Welfare Island, New York	Internal medicine
First Lieut. John W. Frye	Columbia Hospital, Milwaukee	Surgery
First Lieut. Samuel W. Hunter	University Hospitals, University of Minnesota, Minneapolis	Surgery

MEETING OF NEUROPSYCHIATRIC CONSULTANTS

The Neuropsychiatric Consultants of World War II held their fourth annual meeting February 23-24 in the Office of the Surgeon General, the Pentagon, Washington, D. C., to consider problems in neuropsychiatry and to make recommendations. Chairman of the meeting was former Brigadier General William C. Menninger, now clinical director of the Menninger Foundation, Topeka, Kan., and president of the American Psychiatric Association. Among the recommendations made were methods and procedures to liberalize ways and means by which reserve medical officers may earn point credits toward promotions; the promotion of first lieutenants, Medical Corps, to temporary grade of captain after completion of one year on active duty as an aid to procurement of physicians, and the imperative need for research in the field of preventive psychiatry and human resources. This group of forty consultants (psychiatrists and neurologists) represents all sections of the country.

AIR FORCE

COURSE IN AVIATION PHYSIOLOGY TO PROVIDE INSTRUCTORS

An aviation physiology course will open May 2 at the School of Aviation Medicine, Randolph Field, Texas. An increasing demand for the study and understanding of human physiologic tolerances and capabilities in aviation has created the need for instructors in these subjects. The pilots chosen for the instructors' course will be offered opportunities for further education in physiologic research and future assignments with the Aeromedical Laboratory at Wright Field, Dayton, Ohio, or at the School of Aviation Medicine, Randolph Field, Texas. Twenty pilots will be selected for the ten week course.

PUBLIC HEALTH SERVICE

EXAMINATION FOR APPOINTMENT IN THE REGULAR CORPS

A competitive examination for appointment of medical officers to the regular corps of the U. S. Public Health Service will be held at various points throughout the United States May 3-5. The time for filing application for the examination has been extended to April 4. Application forms and further information may be obtained by writing to the Surgeon General, U. S. Public Health Service, Washington 25, D. C., attention: Division of Commissioned Officers. These appointments are permanent in nature and provide opportunities for a lifetime career in clinical medicine, research and public health at Marine hospitals and other Public Health Service facilities. Appointments will be made in the grades of assistant surgeon and senior assistant surgeon, for which entrance pay is, with allowance for dependents, $5,011 and $5,551. Provisions are made for promotion at regular intervals up to and including the grade of senior surgeon and for selection for promotion to the grade of medical director at $9,751 per annum. Applicants must be citizens of the United States, at least 21 years of age and graduates of a recognized medical school.

COURSE IN LABORATORY DIAGNOSIS OF RABIES

A course in the laboratory diagnosis of rabies will be offered April 25-29 at the laboratories of the Communicable Disease Center, 605 Volunteer Building, Atlanta 3, Ga. Although open to all grades of employed laboratory personnel, first consideration will be given to the laboratories of state and local public health departments and other official agencies responsible for the diagnosis of rabies. There is no tuition or laboratory fee, but travel and living expenses must be paid by the student. Application should be made as far in advance as possible. A list of hotels and rooming houses will be sent to applicants at the time of acceptance.

PROFESSOR WARBURG A SPECIAL RESEARCH FELLOW

Professor Otto H. Warburg, director, Kaiser-Wilhelm Institute for Cell Physiology in Berlin, is now serving a six month special research fellowship at the National Cancer Institutes, Bethesda, Md. He will conduct experiments on photosynthesis to determine the relation of carbon dioxide assimilation, as a synthetic process, to cancer. Dean Burk, biochemist at the Institutes, who will work with Professor Warburg, said that the proposed research amounts to studying cancer metabolism in reverse. Photosynthesis (the food-making process in plants) is the conversion of carbon dioxide and water into sugar and oxygen in the presence of chlorophyll and light; in cancer cells, as in all animal cells, sugar and oxygen are converted back into carbon dioxide and water. However, unlike normal animal cells, cancer cells metabolize very inefficiently because their oxidation is incomplete; that is, they do not convert all their sugar into carbon dioxide and water and therefore do not release as much energy from sugar as do normal cells. Professor Warburg contends that interference with the respiration in growing cells (e. g., interference with the oxidation of sugar) is, from the standpoint of the physiology of metabolism, the cause of tumors. Professor Warburg's greatest contribution to science to date was his discovery that all cancer cells, when breaking down sugar, produce great quantities of lactic acid, even in the presence of air. He was awarded the Nobel Prize in 1931 for his work on cell respiration, tumor metabolism and photosynthesis.

OUTBREAKS OF INFLUENZA

The Influenza Information Center at the National Institutes of Health, Bethesda, Md., has received reports of a number of outbreaks of influenza; however, no serious epidemic of influenza has appeared in the United States during the present winter. The isolation of three strains of influenza virus was reported from sporadic cases in the Pittsburgh area December 4, all of the A' group; 2 cases of influenza B were reported at Fort Sill, Okla., Dec. 30, 1948. The diagnosis was established by serologic tests; 4 cases of type B influenza were diagnosed among troops at Fort Ord, Calif., January 14; on January 17 an outbreak of type B influenza was reported in Seattle. Outbreaks in various foreign countries varying from a few cases to 500,000 in Italy were reported to the Influenza Center during January. The Italian outbreak was, at least in part, due to the type B virus, while an extensive outbreak in France affecting about 20 per cent of the population was, at least in half of the cases, caused by type A strain.

SECOND SYMPOSIUM ON ANTIBIOTICS

The National Institutes of Health will sponsor a second national symposium on antibiotic research April 11-12 in Washington, D. C., in the auditorium of the Department of Agriculture. Scientists who wish to attend this symposium or have original unpublished observations to present should communicate with Dr. Leonard Karel, Executive Secretary of the Antibiotic Study Section, National Institutes of Health, Bethesda, Md. The first national symposium on antibiotic research was held two years ago, when thirty-seven papers were presented providing the latest information on streptomycin, penicillin, bacitracin and other antibiotics.

PERSONAL

Dr. Ralph Gregg, who has been with the Public Health Service since 1929, has been appointed Assistant Chief of the Foreign Quarantine Division of the Public Health Service.

VETERANS ADMINISTRATION

RESIDENCIES IN NEUROPSYCHIATRY

Openings are available at this time for July 1 appointment to the Veterans Administration residency training program in neuropsychiatry. This program is under the jurisdiction of the deans of the Boston medical schools (Harvard, Tufts, Boston University), and the training, which may be from one to three years, is given at: Cushing Veterans Administration Hospital, Framingham, Mass.; Bedford Veterans Administration Hospital, Bedford, Mass.; The Mental Hygiene Clinic of Boston, Regional Office of Veterans Administration, Boston; West Roxbury Veterans Administration Hospital, West Roxbury, Mass., and the White River Junction Veterans Administration Hospital, White River Junction, Vt.

All stations are within commuting distance of the Boston Psychoanalytic Institute, in the event applicants have been accepted for analytic training. For information write to: Dr. J. L. Hoffman, Chief of Professional Services, Bedford Veterans Administration Hospital, Bedford, Mass., or to Dr. Wilfred Bloomberg, Chief of Neuropsychiatric Service, Cushing Veterans Administration Hospital, Framingham, Mass.

FEWER VETERANS ON DISABILITY ROLLS

The Veterans Administration announces that the number of World War II veterans on the disability compensation rolls has declined steadily over the last twenty-one months from 1,733,328 to 1,640,656 on Jan. 31, 1949. The number of veterans in training under the G. I. Bill and Public Law 16 also decreased about 193,000 since Jan. 31, 1948.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ARKANSAS

Annual State Medical Meeting.—The annual session of the Arkansas Medical Society will be held at the Robinson Auditorium, Little Rock, April 14-16 under the presidency of Dr. Pearlie W. Lutterloh, Jonesboro. Out of state speakers include:

Hubert L. Allen, Alton, Ill., Rupture of the Pregnant Uterus.
Mr. Mac F. Cahal, Kansas City, Mo., Caution—Curves Ahead.
Edward S. Miller, Denver, Diagnosis and Treatment of Poliomyelitis.
George Crile Jr., Cleveland, Treatment of Diseases of the Thyroid.
A. Carlton Ernstene, Cleveland, Diagnosis and Treatment of Cardiac Arrhythmias.
R. Lee Clark Jr., Houston, Texas, Present Status of Cancer Therapy.

A scientific program will be presented by the faculty of the University of Arkansas School of Medicine, Little Rock, on Thursday afternoon, and an eye, ear, nose and throat section program will be held on Friday. The Woman's Auxiliary to the state society will meet at the Hotel Marion April 14-15.

CALIFORNIA

Typhus Drops 66 Per Cent.—After a year's intensive rodent control work by the Los Angeles City Health Department the incidence of typhus has dropped to less than one third of what it was in 1947. The health department has enforced city council ordinances which require: (1) ratproofing of buildings; (2) elimination of rat shelters; (3) ratproof storage of foods, and (4) extermination. To protect Los Angeles harbor the health department has working arrangements with the Harbor Department, which provides six men full time to cover the Wilmington-San Pedro district. A block by block control program to ratstop buildings and private property in the area where most of the cases of typhus have been reported has had great success. Special health department educational classes have been held for 125 pest control operators in the city and an educational program is currently being carried out.

COLORADO

Western Colorado Spring Clinics.—The Colorado State Medical Society's Western Colorado Spring Clinics will be held at Grand Junction April 23-24. Visiting speakers who will present papers both days are Drs. Philip Brown, Rochester, Minn.; Philip Thorek, Chicago, and George C. Griffith, Pasadena, Calif.

Children's Hospital Summer Clinics.—The Children's Hospital of Denver is offering June 29 to July 1 clinics, demonstrations, seminars and round table discussions of methods of diagnosis and treatment of diseases of infants and children. All of the specialty groups of the staff will participate in the program, which is designed for all physicians interested in children's diseases. Three guest speakers will augment the staff: Dr. Mitchell I. Rubin, professor of pediatrics, University of Buffalo, will participate in medical subjects; Dr. Wolf W. Zuelzer, professor of pediatric research at Wayne University College of Medicine, Detroit, in the hematologic and pathologic material, and Dr. Willis Potts, surgeon-in-chief of the Children's Memorial Hospital, Chicago. Registration will be limited to 75. Applications should be addressed to the Chairman of the Summer Clinics Committee, Children's Hospital, Denver.

ILLINOIS

Rabies in Suburbs.—Twenty-three rabid dogs had been reported in Cook County up to March 21 this year, which is more than twice the number for the corresponding period of 1948, when an all time record of 62 for the year was set. Suburban townships that have been quarantined for rabies which gives police authority to shoot all stray dogs on sight are Barrington, Bremen, Leyden, Lyons, Niles, Palos, Palatine, Proviso, Schaumberg, Thornton and Worth. Dr. Edward Piszczek, county health director, urges pet owners to have their dogs vaccinated against rabies.

Chicago

Kretschmer Memorial Lecture.—The eighth Edwin R. Kretschmer Memorial Lecture will be delivered at the Palmer House on Friday evening, April 29, by Dr. Maxwell M. Wintrobe, professor of medicine, University of Utah College of Medicine, Salt Lake City, on "Current Views Concerning the Nature and Management of Leukemia and Allied Disorders."

Special Meeting on Cancer.—A special meeting for cancer control month, sponsored by the Chicago Medical Society and the Illinois Division, American Cancer Society, will be held April 6, 8 p. m. at the John B. Murphy Memorial Auditorium. Dr. Charles B. Huggins, professor of surgery, University of Chicago School of Medicine, will speak on "Hormones and Cancer." Clarence C. Little, Sc.D., director, Jackson Memorial Laboratory, Bar Harbor, Maine, will speak on "Biological Research in Cancer."

Health Education Conference.—The Health Education Committee of the Welfare Council of Metropolitan Chicago and the Illinois State Department of Public Health are sponsoring a health education conference at the La Salle Hotel the morning of April 7. Among the speakers will be Dr. Iago Galdston, New York, executive secretary on medical information of the New York Academy of Medicine, who will speak on "Motivating Health Education"; Ben Park of the Chicago Industrial Health Association; Arthur Snider, science editor, *Chicago Daily News;* Thomas Jones, University of Illinois Research and Educational Hospitals, and T. Arthur Turner, managing editor, Medical Abstracts Service. The moderator will be Cyril O. Houle of the University of Chicago.

Personals.—Dr. Percival Bailey, professor of neurology and neurosurgery at the University of Illinois and former University of Chicago faculty member, was principal speaker at the annual faculty-student banquet for the graduating class of the University of Chicago Medical School March 17.——Dr. Herman L. Kretschmer, clinical professor of urology at the University of Illinois College of Medicine, has been awarded the Cross of the Chevalier of the Legion of Honor of France in behalf of his contributions to medicine and his efforts in having the Pasteur monument moved from Grant Park to Convalescent Park, opposite Cook County Hospital. Under his direction, funds totaling $25,000 were raised to transfer the monument erected in 1928 and presented to the city by medical groups and French descendants in Chicago. A road-widening project made removal of the monument necessary.

KENTUCKY

Dr. Schoenbach Visiting Professor.—Dr. Emanuel B. Schoenbach, associate professor of the department of preventive medicine, Johns Hopkins University School of Medicine, Baltimore, will serve as visiting commonwealth professor of medicine at the University of Louisville School of Medicine during the week of April 17-23. He will present a series of discussions on "The Mechanism of Actions and Indications for the Newer Antibiotics." He will also discuss "The Treatment of Rickettsial Infections" and "The Experimental Investigations on the Chemo-Therapy of Neoplasms."

Kentucky Physicians Service Plan.—Articles of incorporation for the Kentucky Physicians Service Plan have been filed by the Kentucky State Medical Association. This plan, which is the Kentucky State Medical Association's alternative to the government's proposed health insurance, must be approved by 51 per cent of the physicians in a county, by the state health department and by the State Director of Insurance before it can become effective. Dr. Oscar O. Miller, Louisville, Ky., who as chairman of the committee is responsible for completing arrangements for operation of the plan, heads the directors of the new corporation consisting of twenty other state physicians. Dr. Bruce Underwood, secretary of the Kentucky State Medical Association, is the resident agent of the corporation.

LOUISIANA

Special Meeting on Socialized Medicine.—The Louisiana State Medical Society called a special meeting February 20 in Alexandria to discuss the national compulsory health insurance program. The group was addressed by Dr. R. B. Robins, Camden, Ark., a member of the coordinating committee of the American Medical Association; Mr. Forest A. Harness of Kokomo, Ind., a former congressman, and Mr. John F. McCloskey, dean of the College of Pharmacy, Loyola University School of Pharmacy, New Orleans. A meeting of the house of delegates was held on Sunday afternoon and the house adopted a resolution reaffirming its stand against compulsory health insurance.

MARYLAND

Lecture on Blindness Prevention.—Dr. Haven Emerson, New York, will be the principal speaker at the annual luncheon meeting of the Maryland Society for the Prevention of Blindness April 27 at the Southern Hotel, Baltimore. He will discuss the relationship of the official and voluntary health agencies in the program of blindness prevention.

Dr. Ballentine Appointed to Johns Hopkins.—Robert Ballentine, Ph.D., of Rutgers University, New Brunswick, N. J., was recently appointed associate professor of biology at Johns Hopkins University, Baltimore. He has been assigned to nutrition research work with radioactive elements. He will join Dr. William D. McElroy of the biology department in research work under the university's $500,000 McCollum-Pratt fund for the study of the bearing which so-called trace elements in the soil have on the nutrition of men, plants and animals. Dr. Ballentine is a graduate of Princeton University, Princeton, N. J., and has been research fellow for the Rockefeller Institute and a Guggenheim research fellow.

MINNESOTA

University Cancer Center.—Of 1,454 persons examined at the University of Minnesota's Cancer Detection Center in Minneapolis during the first year of its operation, 801 were referred to their physicians for treatment of some physical abnormality, according to Dr. David State, director of the center. Of these persons 18 suffered some form of cancer and some were found to have other conditions requiring medical attention. Over 650 were free of any ailments. Doctors also detected 379 precancerous conditions which might turn into cancer, 186 benign tumors and 469 instances of noncancerous medical conditions. To accommodate more applicants the Cancer Detection Center will operate five days per week instead of on the two day basis which has been in effect. Almost 15,000 persons have applied, but the Center has a capacity of only 28 to 30 patients per week; under the five day service about 75 persons can be examined each week. No appointments for examinations are being made further ahead than six months. The center, open to Minnesota men and women 45 and over, is financed in part by the Minnesota Division of the American Cancer Society, the National Cancer Institute of the U. S. Public Health Service and the university's malignant disease research fund. A small share of the center's expenses has been derived from the $5 registration fee, which will be raised to $10 April 1.

MISSOURI

The Rev. Schwitalla Resigns as Dean.—The resignation of the Rev. Alphonse M. Schwitalla, S.J., Sc.D., as dean of the St. Louis University School of Medicine was announced in December. Necessitated by ill health, the resignation was effective immediately. Father Schwitalla completed his twenty-first year as dean of the school of medicine on December 3. In addition to serving the school in an advisory capacity, he plans to devote his attention to writing in the fields of medical and nursing education as well as of hospital administration. The Rev. Edward T. Foote, S.J., formerly assistant dean, has been named regent of the school of medicine.

Dr. Post Receives Dana Medal.—Dr. Lawrence T. Post, St. Louis, received the Leslie Dana Gold Medal for 1948, a national award given annually by the National Society for the Prevention of Blindness for outstanding achievement in the prevention of blindness and conservation of vision. Dr. Post was selected by the St. Louis Society for the Blind, through which the medal is offered on the recommendation of the Association of Research in Ophthalmology. The award was presented at a dinner March 25 in St. Louis. Dr. Post is professor of clinical ophthalmology and head of the department of ophthalmology at Washington University School of Medicine, St. Louis. He received his M.D. degree from Johns Hopkins University School of Medicine, Baltimore, in 1913. He has served as president of the American Academy of Ophthalmology and Otolaryngology and chairman of the Section on Ophthalmology of the American Medical Association.

NEW MEXICO

Clinical Society Lectures.—The New Mexico Clinical Society at its April meeting will hear Dr. Charles L. Martin, professor of radiology, Southwestern Medical College, Dallas, Texas, speak at the Veterans Administration Hospital in Albuquerque April 18 at 8 p. m. He will give an illustrated lecture on "The Treatment of Cancer of the Face, Lip and Mouth, and Metastatic Lymph Node with Irradiation."

NEW YORK

Clinical Day for Alumni.—The Alumni Association of the University of Buffalo School of Medicine will conduct its twelfth Annual Spring Clinical Day April 9 at the Hotel Statler, Buffalo. Among the speakers will be Drs. Harry M. Tiebout, Greenwich, Conn.; Harry M. Margolis, Pittsburgh; Maxwell Finland, Boston, and Nolan D. C. Lewis, George G. Deaver, and Irving S. Wright, all of New York.

Postgraduate Instruction.—The Medical Society of the State of New York with the cooperation of the New York State Department of Health has arranged a postgraduate lecture for the Herkimer County Medical Society to be given April 12, 5 p. m. at Prospect Hotel, Herkimer. Dr. John G. Fred Hiss, Syracuse, will speak on "Rheumatic Fever." The Geneva Academy of Medicine meeting at the Bellhurst Restaurant in Geneva April 21 at 8:30 p. m. will hear Dr. Harry Bakwin, New York, speak on "Clinical Child Psychology."

New York City

Seventh Harvey Lecture.—David Rittenberg, Ph.D., associate professor of biochemistry, Columbia University College of Physicians and Surgeons, will deliver the seventh Harvey Lecture of the current series at the New York Academy of Medicine April 21 on "Dynamic Aspects of the Metabolism of Amino Acids."

Long Island College Alumni Dinner.—The annual dinner of the Alumni Association of the Long Island College of Medicine will be held on April 30, 7 p. m. at the Columbus Club, 1 Prospect Park West, Brooklyn. The principal speaker will be Dr. Jean A. Curran, president of the Long Island College of Medicine.

Society Elections.—The Doctors Club of Brooklyn on January 22 installed Drs. David A. Meiselas as president, Bernard Seligman, treasurer, and Mortimer M. Kopp, secretary. Dr. Irwin E. Siris received an illuminated scroll for his outstanding service to the club and to the community and in honor of his accession to the presidency of the Medical Society of the County of Kings and the Brooklyn Academy of Medicine.——The Bronx Pediatric Society has chosen the following officers for the current year: Drs. Nathan M. Greenstein, president, and George Weiss, secretary.

Dr. Haas Honored.—A golden jubilee luncheon for Dr. Sidney V. Haas, in recognition of his contributions to pediatrics and the completion of his fiftieth year of medical practice, will be held at the New York Academy of Medicine April 5. Speakers will include Robert Moses, park commissioner of New York City; Dr. Murray H. Bass, pediatrician, and Dr. Evan Evans. Dr. Haas will receive a Golden Book of Tributes from leaders throughout the world in pediatrics and related fields. Dr. Haas was a pioneer in celiac therapy and in the treatment of the hypertonic infant. The Medical Committee is made up of Dr. Evans, chairman, and Drs. George Baehr, Murray H. Bass, L. Emmett Holt Jr., Rustin McIntosh and Benjamin P. Watson.

Dr. Hinton Becomes Surgical Chief.—Dr. J. William Hinton, director of surgery at University Hospital, has been given additional duties as professor of surgery at Postgraduate Medical School, New York University-Bellevue Medical Center. In the new post he will also be director of the Fourth Surgical Division, Bellevue Hospital. Dr. John H. Mulholland remains as professor of surgery, New York University College of Medicine, and director of the Third Surgical Division, Bellevue Hospital. Under Dr. Hinton's direction, care of patients, teaching of doctors on a postgraduate level and various research projects will be carried out on the Fourth Surgical Division of Bellevue. A professor of clinical surgery on the New York University medical faculty since 1944, Dr. Hinton has been director of surgery at the former Post-Graduate Hospital since June 1947. He is a member of the Council, New York Surgical Society; chairman of the Committee on Applicants, American College of Surgeons, and chairman of the Committee on Professional Standards, New York Academy of Medicine. In 1946 and 1947 he was clinical professor on the medical faculty of Columbia University. He was graduated from the University of Virginia Department of Medicine, Charlottesville, in 1919.

Personals.—Dr. Samuel M. Wishik of the U. S. Children's Bureau, Washington, D. C., has been named director of the Bureau for Mothers and Young Children in the City of New York Health Department. Dr. Wishik, a graduate of the Columbia University College of Physicians and Surgeons, 1929, served with the city health department 1939-1942 and 1946-1947.——Dr. George M. Wheatley has been appointed a third vice president of the Metropolitan Life Insurance

Company and will be concerned with the supervision of the company's health and welfare activities. He is a graduate of Harvard Medical School, Boston, and has been with the company since 1941.——Dr. Frederic Wertham, director of the Lafargue Clinic in New York City and president of the Association for the Advancement of Psychotherapy from 1943 to 1947, was presented a Certificate of Merit for his outstanding contribution through the years to the Adult Education Program of the Queens Federation of Mothers' Clubs, Inc. This is the first such award the federation has made in the forty years of its existence.——Dr. William Antopol, Lyons, N. J., has been appointed director of laboratories of Beth Israel Hospital and director of research of the Joseph and Helen Yeamans Levy Foundation. The foundation was established in 1946 to conduct research. Dr. Antopol is director of laboratories and chief pathologist of the Newark Beth Israel Hospital at Lyons, N. J.

TENNESSEE

State Medical Meeting.—The Tennessee State Medical Association will hold its annual meeting at Read House, Chattanooga, April 12-13 under the presidency of Dr. Harley W. Qualls, Memphis. The tentative program lists the following guest speakers:

Thomas J. Dry, Rochester, Minn., Treatment of Congenital Heart Failure.
Col. James H. Forsee, Denver, Surgical Treatment of Malignant Lesions of the Gastro-Intestinal Tract.
David G. Miller Jr., Morgantown, Ky., For What Type Practice Should the Physician Be Trained?
Lawrence Reynolds, Detroit, Polypsis of the Colon.
Col. Elbert DeCoursey, Washington, D. C., Medical Aspects of Atomic Explosion.
Paul A. Davis, Akron, Ohio, Subject to be announced.

An obstetric symposium with Dr. Frank E. Whitacre, Memphis, as moderator will be presented by the obstetric staff of the University of Tennessee. The medical staff of Vanderbilt University, Nashville, will conduct a symposium on "Headaches of the General Practitioner," with Dr. Rudolph H. Kampmeier as moderator. Tuesday night session speakers include besides the president, Dr. Roscoe L. Sensenich, President, American Medical Association, South Bend, Ind., and Dr. Louis A. M. Krause, Baltimore.

TEXAS

State Medical Journal.—The *Texas State Journal of Medicine* appeared in January redesigned from the standpoint of cover, layout and typography. The blue and white cover printed in black ink utilizes the state insignia, the star, within which is an outline of the caduceus.

Scientific Meeting of Texas Rheumatism Association.—The Texas Rheumatism Association, founded in 1948, will hold its first scientific session May 2 in San Antonio. Guest speakers include: Drs. W. Paul Holbrook, Tucson, Ariz., president of the Arthritis and Rheumatism Foundation; Paul R. Lipscomb, orthopedic surgeon of the Mayo Clinic, Rochester, Minn.; James O. Finney, assistant professor of medicine in charge of the Arthritis Clinic, Medical College of Alabama, Birmingham, Ala., and William K. Ishmael, president of the Oklahoma Rheumatism Association, Oklahoma City.

VIRGINIA

Williams Memorial Lecture.—A group of residents who trained under Dr. Tiffany J. Williams when he was professor of obstetrics and gynecology at the University of Virginia Department of Medicine, Charlottesville, 1931-1947, have established a lectureship fund in his memory. The initial annual memorial lecture will be given at the university April 8 by Dr. Nicholson J. Eastman, Johns Hopkins Hospital, Baltimore.

Advisors to Division of Alcoholic Studies.—A committee of technical advisors for the state's new division of alcoholic studies and rehabilitation has been secured by the Virginia Department of Health. The committee will help with the medical and psychiatric aspects of the control of alcoholism. Members of the committee outside the state include Drs. Robert Fleming, Boston; Georgio Lolli, New Haven, Conn., and Joseph Hirsh, Birmingham, Ala. Members of the committee from the state include Dr. R. Finley Gayle and Dr. Harvey B. Haag, dean, the Medical College of Virginia at Richmond; Dr. William Porter of the Medical College of Virginia Hospital in Richmond; Dr. Henry B. Mulholland, assistant dean, University of Virginia Department of Medicine, Charlottesville; Dr. David C. Wilson, Charlottesville; Dr. Joseph E. Barrett, Richmond, and Dr. M. Pierce Rucker, president of the Medical Society of Virginia, Richmond. Earlier an advisory committee of laymen was named to assist the division in sociologic phases of the work.

WEST VIRGINIA

First Rheumatic Fever Clinic.—West Virginia's first rheumatic fever diagnostic clinic was opened at the health center in Fairmont March 10. The new clinic was made possible by close cooperation between the Marion County Medical Society and the county health department. It is estimated that the expenses for operating the clinic will be between $15,000 and $20,000 per year. The Marion County Medical Society will designate members who will be in charge of the clinic for a two month period throughout the year. The schedule for professional supervision has been completed for the remainder of the year. Over-all administration will be in charge of Dr. Claude L. Holland and Dr. Ormond L. Haynes, pediatricians, and Dr. A. Glenn Evans, county health officer. Drs. John P. Helmick, J. J. Jenkins Jr., Robert H. Jones and L. Rush Lambert have been named consultants. Patients will be accepted only on referral from the family physician. Arrangements have been made with Fairmont General Hospital for the care of children who are found to need hospitalization. Clinical services will include physical examination, fluoroscopy of the chest, chest roentgenograms, urinalysis, blood count, an electrocardiogram and a blood sedimentation test. A complete diagnosis with recommendations will be sent to the family physician. West Virginia is the twenty-sixth state to establish a diagnostic rheumatic fever clinic.

WISCONSIN

Chair of Medical History.—A new chair has been created in the Marquette University School of Medicine with the appointment of Dr. G. Kasten Tallmadge as professor of the history of medicine. Dr. Tallmadge is the first professor of medical history at Marquette. A Marquette Medical School faculty member for eighteen years, he is also an assistant professor of anatomy. In addition to a doctor of medicine degree, he holds the degrees of master of arts and doctor of philosophy.

State Society Begins Doctor Placement Service.—The Council on Medical Service and Public Relations of the State Medical Society of Wisconsin has developed a plan to encourage physicians to locate in areas of the state where they are most needed. At the time examinations are given by the State Board of Medical Examiners, each physician will be interviewed to find out whether he has decided where to practice or if he is looking for available location. If he has no definite plans, he will be advised of communities in Wisconsin that are interested in obtaining physicians' services. Details about the community, including schools, population, availability of hospital facilities, ambulance service and nursing care, housing, roads and other related facts gathered by members of the medical society, are available to interested physicians. Nearly thirty communities have filed information with the medical society. The plan was made available to nearly sixty applicants for licensure who took medical examinations at the January meeting of the board.

GENERAL

Special Society Meeting.—The annual meeting of the American Laryngological, Rhinological and Otological Society, Inc., will be held at the Drake Hotel, Chicago, April 18-20 under the presidency of Dr. John J. Shea, Memphis, Tenn. The guest of honor will be Dr. Claude C. Cody, Houston, Texas, who will speak on "Treatment of Carcinoma of the Larynx: A Statistical Study of Results." Others speaking by invitation are Drs. Hart E. Van Riper, New York; E. W. Alton Ochsner, New Orleans; Herman J. Moersch, Rochester, Minn., and Robert Buxton, Ann Arbor, Mich. The president's reception and the annual banquet will be held Wednesday at 5:30 p. m.

Institute for Muscle Research.—A group of scientists headed by Dr. A. Szent-Györgyi, Bethesda, Md., is organizing an Institute for Muscle Research. The institute has a laboratory at the Marine Biological Laboratory at Woods Hole, where seven researchers are working. Another group is conducting research at the National Institutes of Health, Bethesda, Md. The research outside this institute is financed by the Muscle Institute, which attempts to collect funds and has received $25,000 from the American Heart Association. The institute was founded with the aim to provide means necessary for the continuation of Dr. Szent-Györgyi's research in the United States.

To Form Society in Forensic Sciences.—In January 1948 a group of forensic scientists met, at the invitation of Dr. Rutherford B. H. Gradwohl, in St. Louis, to consider the formation of a society devoted to the interests of forensic science. The gathering included medicolegal experts, pathologists, chemists, toxicologists, psychiatrists and those connected with police science laboratories. A second convocation of a Steering Committee was held in New York in October 1948.

Since that time Dr. Gradwohl has appointed committees which are preparing the way for an organizational meeting. Interested persons may secure further information from Dr. Gradwohl, 3514 Lucas Avenue, St. Louis, or Professor Ralph F. Turner, Michigan State College, East Lansing, Mich.

Lowest Infant Death Rate on Record.—The U. S. Public Health Service reports that the infant death rate in 1947 was the lowest on record and indications are that the 1948 infant death rate will be even lower. In 1947 119,173 babies died before reaching their first birthday, a proportion of 32.2 deaths for every 1,000 live births. In 1946 the rate was 33.8 for every 1,000 live births. The service estimated that the 1948 rate would be 31.8 for every 1,000 live births. According to the report, 75.7 per cent of infant deaths in 1947 could be traced to five causes: premature birth, 11.1; congenital malformations, 4.6; pneumonia and influenza, 3.6; injury at birth, 3.5, and asphyxia and atelectasis, 1.6. It was found that the death rate was higher among nonwhite babies (48.5) than among white infants (30.1) and higher for boys than for girls.

National Foundation for Cerebral Palsy.—At the first national public conference in New York on cerebral palsy the formation of the National Foundation for Cerebral Palsy was announced by Leonard Goldenson, president. The foundation will serve as "a clearing house of information, a coordinating agency and driving force" for cerebral palsy organizations throughout the country. Other officers of the foundation were listed as Mr. Arthur Larschan, New York, and Mr. Albert Felmet Jr., president of the New York State Cerebral Palsy Association, which sponsored the conference, and Mrs. James Killilea of Rye, chairman of the board. Mr. Larschan and Mrs. Killilea are vice presidents of the state organization. They and Dr. Foster Kennedy, chief of neurology at Bellevue Hospital, were the incorporators.

Society Elections.—The Southeastern Allergy Association at its annual meeting in Durham, N. C., in January, elected Dr. Oscar Swineford Jr., Charlottesville, Va., president, and reelected Dr. E. Katharine Baylis MacInnis, Columbia, S. C., secretary-treasurer. Dr. Lewis D. Hoppe, Atlanta, Ga., and Dr. G. Frederick Hieber, St. Petersburg, Fla., were elected executive committeemen at large. The 1950 meeting will be held in Columbia, S. C.——The International Academy of Proctology, 45-45 Kissena Blvd., Flushing, Long Island, N. Y., has chosen as its officers for 1949 Drs. Joseph H. Judd, M.D., Pittsburgh, international president; Mark L. Emerson, Oakland, Calif., president-elect; Edgar M. Scott Jr., Birmingham, Ala., secretary-general; Manuel G. Spiesman, Chicago, treasurer, and Alfred J. Cantor, Flushing, Long Island, N. Y., secretary. Information for affiliation with the academy may be obtained by writing to the secretary, Dr. Alfred J. Cantor, Flushing, Long Island.

Maternal Mortality Rate at New Low.—The final tabulation of the number of births in 1947, released by the National Office of Vital Statistics on Feb. 17, 1949, reports 3,699,940 births for 1947, a new high for the United States. At the same time a record low maternal death rate has been reached. In the Dec. 15, 1948 release of the National Office of Vital Statistics the number of maternal deaths for 1947 was given as 4,978. This results in a maternal mortality rate of 1.3 deaths per thousand live births. The most recent maternal mortality rates listed in the Summary of International Vital Statistics, 1937-1944, National Office of Vital Statistics, cite no annual rate as low as the one achieved by the United States in 1947. It is clear that the United States now ranks first among all nations or is very close to achieving this rank. The white maternal mortality rate for 1946 was 1.3. The gain in one year has been sufficient to reduce the national rate in 1947 to that of the white rate in the previous year.

Foundation Appoints Scholars in Medical Science.—Thirteen young scientists have been appointed as the second group of scholars in medical science, under the plan begun in 1948 by the John and Mary R. Markle Foundation to assist men and women wishing to remain in academic medicine. The scholars were selected from candidates nominated by accredited medical schools in the United States and Canada and interviewed by regional committees appointed by the foundation. The sum of $325,000 has been appropriated for their support, to be allotted in grants of $25,000 each at the rate of $5,000 a year, to the medical schools in which they now hold faculty appointments. A total of twenty-nine doctors have now received appointments as scholars. It is expected that fifty will be appointed during the five year program and that a total of $1,250,000 will be appropriated toward their support.

The thirteen scholars, all but one physicians, whose appointments begin in 1949, and the schools that will receive the $25,000 grants for their support are: Francis P. Chinard, clinical chemistry and physiology, Johns Hopkins University School of Medicine; Donald W. Fawcett, microscopic anatomy, Harvard Medical School; Allan V. N. Goodyer, internal medicine and cardiovascular disease, Yale University School of Medicine; John B. Graham, pathology, University of North Carolina School of Medicine, Chapel Hill; John D. Green, anatomy and physiology, Wayne University College of Medicine, Detroit; George Watson James III, internal medicine and physiology, Medical College of Virginia, Richmond; Ralph Jones Jr., clinical therapeutics, University of Pennsylvania School of Medicine; George E. Moore, surgery and oncology, University of Minnesota Medical School; C. Barber Mueller, surgery and biochemistry, Washington University School of Medicine, St. Louis; George W. Schwert Jr., Ph.D., physical biochemistry, Duke University School of Medicine, Durham, N. C.; Beverly T. Towery, internal medicine and endocrinology, Vanderbilt University School of Medicine, Nashville, Tenn.; W. Clarke Wescoe, pharmacology, Cornell University Medical College, New York, and Donald R. Wilson, internal medicine and endocrinology, University of Alberta Faculty of Medicine, Edmonton, Alberta, Canada.

CANADA

Dr. McCulloch Awarded Reeve Prize.—Dr. John C. McCulloch of the University of Toronto Faculty of Medicine has been awarded the Reeve Prize for his study in conjunction with Dr. Robert J. P. McCulloch on "A Hereditary and Clinical Study of Choroideremia." The award is made for the best scientific research accomplished in any department in the faculty of medicine by one who has held appointment on the staff not more than five years.

Dr. Weaver Named Dean at Canadian University.—Dr. Myron M. Weaver, assistant dean of medical sciences at the University of Minnesota, Minneapolis, has been chosen dean of the new medical school at the University of British Columbia, Vancouver, effective in July. Dr. Weaver, a graduate of Rush Medical College, 1932, is a specialist certified by the American Board of Internal Medicine and member of other scientific groups. His clinical specialties are studies in diabetes and nutrition.

CORRECTIONS

Research in Diarrheal Diseases.—A research project on diarrheal diseases is being carried on at the Louisiana State University School of Medicine, New Orleans, not at the Tulane University School of Medicine as was stated in The Journal, January 1, page 44.

University Honors Dr. Lehman.—In the January 22 issue of The Journal, page 241, the school at which Dr. Edwin P. Lehman is located should have been the University of Virginia Department of Medicine at Charlottesville and not the Medical College of Virginia at Richmond, as was stated in the news item. Dr. Lehman was honored for his twenty years of service as professor of surgery and gynecology at the university.

Marriages

Charles Hyatt Field, Birmingham, Ala., to Miss Helen Virginia Minges of Rocky Mount, N. C., February 3.

McKenzie Parker Moore Jr., Charleston, S. C., to Miss Amy Ashburn Lofton of McClellanville, November 6.

John Wood Hayden, Rochester, N. Y., to Miss Mary Phyllis Briddell of Crisfield, Md., December 28.

George William Ware, Washington, D. C., to Miss Patricia Kirby Jay of Marion, N. C., January 29.

Robert G. Eisenhardt, Canisteo, N. Y., to Miss Annette Elizabeth Hull of Arkport, January 8.

Julius H. Winer to Miss Naomi Sari Borowsky, both of Beverly Hills, California, February 6.

George E. Howell, Meridian, Miss., to Miss Mathilde Turner of Atlanta, Ga., February 5.

Helen S. Barnard to Mr. J. Fred Boyd, both of Muskegon, Mich., in New York, February 5.

Virginia Maria Ferrara to Mr. John Marvin Cannon, both of Detroit, January 22.

Reuben Turner to Miss Veronica Mary Adkins, both of New York, recently.

Deaths

John Elmer Weeks ⊕ Portland, Ore.; born in Painesville, Ohio, in 1853; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1881; for many years professor of ophthalmology and later professor emeritus at the University and Bellevue Hospital Medical College, now known as the New York University College of Medicine; in 1940 was appointed honorary professor of ophthalmology and later professor emeritus at the University of Oregon Medical School; in 1921 he established a scholarship for ophthalmologic research at the University of Michigan Medical School in Ann Arbor; specialist certified by the American Board of Ophthalmology and the Royal College of Physicians and Surgeons of Canada; in 1902 chairman of the Section on Ophthalmology and in 1910 and 1911 member of the House of Delegates of the American Medical Association, which in 1929 awarded him the Ophthalmic Research Medal for his contribution to the science of ophthalmology; past president of the American Ophthalmological Society and the New York County Medical Society; member of the American Academy of Ophthalmology and Otolaryngology, Association for Research in Ophthalmology and the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; served during World War I; consultant in ophthalmologic surgery at Doernbecher Memorial Hospital for Children in Portland and the New York Eye and Ear Infirmary; co-discoverer with Dr. Robert Koch, of the Koch-Weeks bacillus which causes conjunctivitis; held honorary degrees from the University of Michigan, New York University and the University of Oregon; author of "Treatise on Diseases of the Eyes"; died in La Jolla, Calif., February 2, aged 95.

Alvin Clay McCall ⊕ Asheville, N. C.; born in Marion, N. C., Oct. 10, 1889; University of Maryland School of Medicine, Baltimore, 1910; fellow of the American College of Surgeons; past president of the Buncombe County Medical Society; served overseas during World War I and during World War II on the district board of appeals of the Selective Service System; formerly member of the county board of health; charter member of the staff of Aston Park Hospital, which he was instrumental in organizing; on the staffs of the Mission and Biltmore hospitals; died December 2, aged 59, of coronary thrombosis.

Joseph Aarons, Detroit (licensed in Michigan in 1900); died January 7, aged 86, of gastroenteritis.

Alanson Joseph Abbe, Winter Park, Fla.; Harvard Medical School, Boston, 1885; member of the American Medical Association and of the Massachusetts Medical Society; formerly on the staff of Union Hospital in Fall River, Mass.; died January 3, aged 87, of heart failure following renal colic.

Albyn Lincoln Adams ⊕ Jacksonville, Ill.; Bennett Medical College, Chicago, 1886; College of Physicians and Surgeons, medical department of Columbia College, New York, 1889; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; affiliated with the Passavant Memorial Hospital, Our Saviour's Hospital and the Illinois School for the Blind; oculist and aurist to the Chicago and Alton Railroad; died January 31, aged 83, of cerebral hemorrhage.

Xeno F. Alexander, Dodge City, Kan.; Ensworth Medical College, St. Joseph, Mo., 1907; county health officer; member of the American Medical Association; died in the Murray Memorial Hospital January 7, aged 67, of coronary thrombosis.

Charles Walker Allen, Washington, D. C.; Jefferson Medical College of Philadelphia, 1903; member of the American Medical Association; on the staff of the George Washington University Hospital; died January 17, aged 69, of nephritis and endocarditis.

Joseph Elias Anderson, Moore, Okla.; Chattanooga (Tenn.) Medical College, 1896; died January 7, aged 79.

John Christian MacEvitt Auwerda, Brooklyn; Long Island College Hospital, Brooklyn, 1912; member of the American Medical Association; specialist certified by the American Board of Otolaryngology; fellow of the American College of Surgeons; affiliated with the Brooklyn Eye and Ear Hospital, St. Mary's Hospital, Hospital of the Holy Family, Norwegian Lutheran Deaconesses' Home and Hospital and the Nassau Hospital in Mineola, N. Y.; died January 11, aged 60, of coronary thrombosis.

Ezra Robert Baldridge ⊕ Terre Haute, Ind.; Eclectic Medical Institute, Cincinnati, 1896; on the staff of the Union Hospital; died January 15, aged 75, of coronary thrombosis with myocardial infarction.

Bart M. Ballenger, Strong City, Okla.; University of Tennessee Medical Department, Nashville, 1889; died in Elk City, January 17, aged 84.

Joseph J. Bansbach ⊕ St. Joseph, Mo.; Ensworth Medical College, St. Joseph, 1898; an Associate Fellow of the American Medical Association; specialist certified by the American Board of Urology; member of the American Urological Association; fellow of the American College of Surgeons; affiliated with St. Joseph's and Methodist hospitals; member of the Welfare Board; died January 19, aged 72, of carcinoma of the lung.

Mark Adolph Baush ⊕ Allentown, Pa.; Jefferson Medical College of Philadelphia, 1923; served during World War I; affiliated with the Allentown Hospital, where he died January 3, aged 51, of malignant hypertension.

John Sherrill Betz, Kansas City, Kan.; University of Michigan Medical School, Ann Arbor, 1937; member of the American Medical Association; served during World War II; on the faculty of the University of Kansas School of Medicine; affiliated with St. Margaret's Hospital, Bethany Hospital and Providence Hospital, where he died January 18, aged 39, of coronary occlusion with infarction.

Thomas Dalzell Blair, Watchung, N. J.; New York Homeopathic Medical College and Hospital, New York, 1903; member of the American Medical Association; served on the staff of the Muhlenberg Hospital, Plainfield, where he died January 2, aged 72, of carcinoma of the prostate.

George Elbert Bogart, Sherwood, Tenn.; Vanderbilt University School of Medicine, Nashville, Tenn., 1908; died in the Erlanger Hospital, Chattanooga, January 23, aged 65.

Louis Bothman ⊕ Chicago; Rush Medical College, Chicago, 1917; clinical professor of ophthalmology at the University of Illinois College of Medicine; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology and the Association for Research in Ophthalmology; fellow of the American College of Surgeons; served during World War I; on the staff of St. Luke's Hospital; died January 19, aged 55, of chronic myocarditis.

Philip H. Bourne, Salamanca, N. Y.; University of Michigan Homeopathic Medical School, Ann Arbor, 1891; member of the American Medical Association; past president of the Cattaraugus County Medical Society; examining physician for local draft boards during World Wars I and II; served as school physician, medical examiner for the Erie Railroad, and as health officer of Salamanca; for many years county coroner; died January 2, aged 79, of cerebral hemorrhage.

Albert Wellington Bridge, Tacoma, Wash.; University of Vermont College of Medicine, Burlington, 1905; died in the Tacoma General Hospital January 6, aged 69, of cerebral hemorrhage.

Edward Majors Brown, Chattanooga, Tenn.; Meharry Medical College, Nashville, 1919; died in the Veterans Administration Hospital, Tuskegee, Ala., January 13, aged 58.

William John Buck, Belle Glade, Fla.; Hering Medical College, Chicago, 1912; member of the American Medical Association; died January 14, aged 60.

Ina Van Derhoof Burt, Phelps, N. Y.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1895; member of the American Medical Association; for many years health officer of the town and village of Phelps and affiliated with the State Teachers College in Fredonia; died in the Geneva (N. Y.) General Hospital January 2, aged 81, of cerebral hemorrhage.

John Harold Butts, Ellaville, Ga.; State University of Iowa College of Medicine, Iowa City, 1919; member of the Iowa State Medical Society and the American Medical Association; served during World War II; affiliated with St. Francis, Presbyterian and Allen Memorial hospitals in Waterloo, Ia.; died January 21, aged 54, of encephalomyelitis following rabies vaccination.

Hugh Carmichael ⊕ Sacramento, Calif.; College of Medical Evangelists, Loma Linda and Los Angeles, 1934; associated with the Sutter Hospital; died January 13, aged 48.

Charles Hervey Carter ⊕ Eastland, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1907; died in Ranger, January 22, aged 65, of cerebral hemorrhage and hypertension.

George Otis Castellaw, Commerce, Ga.; Atlanta College of Physicians and Surgeons, 1913; formerly councilman and mayor; died January 23, aged 64, of carcinoma of the pancreas.

William Dennis Cawley, Elkton, Md.; University of Maryland School of Medicine, Baltimore, 1902; member of the American Medical Association; served during World War I; died January 11, aged 76, of acute coronary disease.

Irving Lee Chapman ⊕ South Norfolk, Va.; Baltimore Medical College, 1904; city health officer; on the staffs of the Leigh Memorial Hospital and De Paul Hospital, where he died January 20, aged 69, of cerebral thrombosis.

Grover Cleveland Coakley, Pasadena, Calif.; Northwestern University Medical School, Chicago, 1904; died January 7, aged 65.

Llewellyn Rathbun Cole ⊕ Madison, Wis.; University of Wisconsin Medical School, Madison, 1929; professor of clinical medicine and coordinator of graduate medical education at his alma mater, where he was director of the department of student health; served as director of the state medical society's radio series, the March of Medicine; fellow of the American College of Physicians; affiliated with the State of Wisconsin General Hospital; died January 1, aged 46, of subarachnoid hemorrhage.

Albert Wallace Cowan, Middlesboro, Ky.; Harvard Medical School, Boston, 1935; member of the American Medical Association; served during World War II; affiliated with Middlesboro Hospital, where he died January 30, aged 40, of carcinoma of the transverse colon.

Orville H. Cribbins, Sarasota, Fla.; University of Nashville Medical Department, 1906; member of the American Medical Association; affiliated with the Sarasota Hospital, where he died January 25, aged 68, of uremia and heart disease.

George Henry Crofton ⊕ Washington, D. C.; College of Physicians and Surgeons, Baltimore, 1914; formerly associated with the U. S. Public Health Service reserve and the Veterans Bureau; died January 8, aged 60, of coronary occlusion.

Charles Henry Crooks, St. Augustine, Fla.; College of Physicians and Surgeons, Medical Department Kansas City University, 1904; Presbyterian Medical Missionary in North Thailand, for many years; member of the Thailand Medical Society, Royal Society of Tropical Medicine and Hygiene and the American Society of Tropical Medicine; died January 17, aged 73, of coronary thrombosis.

Frederick Edward Cunningham ⊕ Chicago; Chicago College of Medicine and Surgery, 1912; died in New Orleans January 20, aged 63, of coronary occlusion.

Patrick Vincent Cunningham, Providence, R. I.; Baltimore Medical College, 1903; died in St. Joseph's Hospital January 22, aged 75, of chronic nephritis.

William Embury Dake, Rochester, N. Y.; Hahnemann Medical College and Hospital of Philadelphia, 1898; affiliated with Genesee Hospital, Highland Hospital and the Convalescent Hospital for Children; died January 7, aged 74, of arteriosclerotic heart disease, carcinoma of the rectum and coronary infarction.

Arnold Drexel ⊕ Wauwatosa, Wis.; University of Buffalo School of Medicine, 1889; an Associate Fellow of the American Medical Association; served on the staffs of Deaconess, Mount Sinai and St. Joseph's hospitals; died January 21, aged 85, of laryngeal carcinoma.

Frank Creighton Eastman, San Francisco; Stanford University School of Medicine, San Francisco, 1940; member of the American Medical Association; died in Vicksburg, Miss., January 14, aged 39, of heart disease.

Edwin James Evans, Ontonagon, Mich.; Detroit College of Medicine, 1896; formerly health officer of the Rockland township; served during World War I; died January 9, aged 77, of cerebral hemorrhage and arteriosclerosis.

Chester L. Farquharson, Houston, Texas (licensed in Texas in 1920); served during World War I; died January 24, aged 56, of cerebral thrombosis and uremia.

Oscar George Fegley, Yeadon, Pa.; Jefferson Medical College of Philadelphia, 1890; died in the Jefferson Hospital December 13, aged 81, of monocytic leukemia and uremia.

George MacIntire Ferguson, Philadelphia; Jefferson Medical College of Philadelphia, 1899; member of the American Medical Association; served during World War I; died in Joseph Price Memorial Hospital January 18, aged 74, of chronic myocarditis.

Paul Bernays Folger, Dobson, N. C.; Jefferson Medical College of Philadelphia, 1922; member of the American Medical Association; served in France during World War I; died in the Duke Hospital, Durham, January 15, aged 56, of cerebral hemorrhage.

Charles Bickley Fox, Monterey, Va.; University of Virginia Department of Medicine, Charlottesville, 1899; member of the American Medical Association; served as county coroner and as mayor; died in King's Daughters' Hospital, Staunton, January 26, aged 76, of hypostatic pneumonia and bronchiectasis.

William Robert Galbreath Jr., Shreveport, La.; Louisiana State University School of Medicine, New Orleans, 1939; member of the American Medical Association; served during World War II; on the staff of the North Louisiana Sanitarium; affiliated with the Veterans Administration Hospital in Jackson, Miss.; died in San Antonio, Texas, January 6, aged 38, of heart disease.

Sherwood P. Garrison ⊕ Bellevue, Ky.; Miami Medical College, Cincinnati, 1905; fellow of the American College of Surgeons; served as president of the Campbell County Health Board; president of the nurses' training school, trustee and vice president of the Speers Memorial Hospital, Dayton, where he was on the staff and where he died January 27, aged 67, of acute leukemia.

Bruno J. W. Glaubitz ⊕ Sheboygan, Wis.; the Hahnemann Medical College and Hospital, Chicago, 1917; affiliated with St. Nicholas Hospital and Sheboygan Memorial Hospital, where he died January 14, aged 59, of coronary occlusion.

Frank Raymond Gomila Sr., New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1908; member of the American Medical Association; served as commissioner of public safety; affiliated with Hotel Dieu, Charity Hospital and French Hospital, died in the Baptist Hospital January 22, aged 61, of coronary occlusion.

Edward Phillip Gramer, Chicago; University of Illinois College of Medicine, Chicago, 1920; associate clinical professor of surgery at Loyola University College of Medicine; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; affiliated with St. Anne's Hospital, where he died November 25, aged 56, of myocardial infarction.

Lowell McKee Green ⊕ Rushville, Ind.; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; served during World War I; for many years county health officer; died January 3, aged 66, of coronary occlusion.

Edmund Harrison ⊕ Greensboro, N. C.; University College of Medicine, Richmond, 1896; died December 13, aged 75.

Malcom A. H. Hart, Milton, N. H.; University of the City of New York Medical Department, 1888; member of the American Medical Association; president of the board of trustees of the Nute High School; died in Bedford, Mass., January 24, aged 87, of arteriosclerotic heart disease and thrombophlebitis of the left leg.

Thomas Irwin Henning, Glens Falls, N. Y.; L.R.C.P., London, England, and M.R.C.S., England, 1890; died in Glens Falls Hospital January 8, aged 85, of arteriosclerosis.

George Stevenson Holeman, Centerville, Calif.; University of Oregon Medical School, Portland, 1921; a member of the American Medical Association; affiliated with San Jose (Calif.) Hospital, where he died December 8, aged 61.

Allen H. Hostetter, Lincoln, Neb.; Rush Medical College, Chicago, 1886; died December 4, aged 90, of heart disease.

Fredd Chandler House, Detroit; Cleveland Homeopathic Medical College, 1901; died in the Highland Park (Mich.) Hospital January 24, aged 67, of retroperitoneal abscess and generalized arteriosclerosis.

Charles Francis Howland ⊕ Des Moines; Northwestern University Medical School, Chicago, 1903; fellow of the American College of Surgeons; member of the staffs of the Iowa Methodist Hospital, Mercy Hospital and the Iowa Lutheran Hospital, where he died January 22, aged 69, of hemorrhage of stomach.

Josiah Herman Kirk ⊕ Palo Alto, Calif.; Cooper Medical College, San Francisco, 1906; member of the American Academy of Ophthalmology and Otolaryngology; affiliated with the Palo Alto Hospital, where he died December 8, aged 69, of coronary occlusion.

William Evans Lester, Mullins, S. C.; Medical Department of Tulane University of Louisiana, New Orleans, 1911; member of the American Medical Association; served overseas during World War I; a member of the board of health; affiliated with the Mullins Hospital, where he died December 10, aged 60, of cerebral hemorrhage.

Mae Dillard McInnes-Pappas, West Frankfort, Ill.; Hering Medical College, Chicago, 1912; member of the American Medical Association; died December 15, aged 59, of coronary sclerosis.

William Thomas McLean ⊕ Maroa, Ill.; Rush Medical College, Chicago, 1881; an Associate Fellow of the American Medical Association; died December 18, aged 90, of myocardial insufficiency and intestinal obstruction.

Bennett Andrew Melgaard, Sioux City, Iowa; Sioux City College of Medicine, 1908; died December 4, aged 67, of cerebral hemorrhage.

Eliza Johnson Merrick, Syracuse, N. Y.; Homeopathic Hospital College, Cleveland, 1884; died December 14, aged 91, of arteriosclerotic heart disease and carcinoma of the right breast.

George Brinton McClellan Miller ⊕ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1885; served on the staff of the Episcopal Hospital; died December 6, aged 84.

Benjamin Joseph Moss, Los Angeles; New York Homeopathic Medical College and Flower Hospital, 1910; died recently, aged 61.

Anthony Victor Nanna, New York; Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia, Italy, 1937; member of the American Medical Association; served during World War II; formerly on the staff of the Mother Cabrini Memorial Hospital; died recently, aged 35, of rheumatic heart disease.

Charles Leonard Overlander ⊕ Boston; Harvard Medical School, Boston, 1905; fellow of the American College of Physicians; formerly lecturer at his alma mater and at the Tufts College Medical School; served as toxicologist for the Commonwealth of Massachusetts and biochemist for the Industrial Accident Board; for many years affiliated with the Brooks Hospital, Brookline, where he died December 16, aged 75.

Charles Freeman Perry, Block Island, R. I.; University of Pennsylvania Department of Medicine, Philadelphia, 1888; member of the American Medical Association; served on the staff of St. Joseph's Hospital in Providence; died in Wakefield, December 18, aged 80, of carcinoma.

Harry Wray Porter ⊕ Atlanta, Ga.; Tulane University of Louisiana School of Medicine, New Orleans, 1925; member of the Florida Medical Association; associated with the Veterans Administration; served during World Wars I and II; died in Crawford W. Long Memorial Hospital recently, aged 63.

Loring Hay Raymond ⊕ Somerville, Mass.; Harvard Medical School, Boston, 1903; fellow of the American College of Surgeons; on the staff of Somerville Hospital; died recently, aged 69, of cerebral hemorrhage.

William Alfred Ricard, Toledo, Ohio; Toledo Medical College, 1906; affiliated with Robinwood Hospital, where he died December 4, aged 74, of myocardial infarction and pulmonary embolism.

Carrie Elizabeth Rice, Wilton, N. H.; Boston University Medical School, 1900; died in the Sacred Heart Hospital, Manchester, December 1, aged 77, of pneumonia.

James Daniel Roberts, Beech Grove, Ky.; Louisville (Ky.) Medical College, 1907; died December 17, aged 77, of coronary thrombosis.

Samuel Rosenberg, New York; Long Island College Hospital, Brooklyn, 1905; died in Miami Beach, Fla., recently, aged 66, of cerebral hemorrhage.

Walter W. Seibert, Easton, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1900; president of the board of trustees of the Allentown (Pa.) State Hospital; died in St. Petersburg, Fla., December 13, aged 72, of angina pectoris.

Bertha Loveland Selmon ⊕ Battle Creek, Mich.; American Medical Missionary College, Battle Creek and Chicago, 1902; formerly a medical missionary in China; past president of the Michigan Branch of the Medical Women's National Association; died in the Community Hospital January 25, aged 71, of intracranial hemorrhage and arteriosclerosis.

Charles Dodge Slagle ⊕ Dayton, Ohio; Starling Medical College, Columbus, 1897; served during World War I; affiliated with Miami Valley Hospital; died December 2, aged 77, of arteriosclerotic heart disease.

James Davis Smith ⊕ Collingswood, N. J.; Jefferson Medical College of Philadelphia, 1914; served on the staff of Cooper Hospital in Camden; died December 16, aged 69, of cardiac failure.

Oncey H. Smith, Ardmore, Okla.; University of West Tennessee College of Medicine and Surgery, Memphis, 1910; died recently, aged 65.

William Smith, Naples, Texas; Epworth College of Medicine, Oklahoma City, 1909; member of the American Medical Association; died January 16, aged 68.

Lucien Stark ⊕ Norfolk, Neb.; John A. Creighton Medical College, Omaha, 1903; past president of the Nebraska State Medical Association, American Geriatrics Society and the American Association of Railway Surgeons; formerly member of the state board of health; served during the Spanish-American War and World War I; affiliated with the Chicago and Northwestern Railway and the Union Pacific Railroad; died in North Platte January 11, aged 66, of coronary thrombosis.

William Henry Starr, Blue Island, Ill.; St. Louis College of Physicians and Surgeons, 1904; for many years mayor of Crestwood; died December 16, aged 71, of coronary occlusion.

James Alexander Stewart, Brooklyn; New York Homeopathic Medical College, 1885; for many years on the staff of Peck Memorial Hospital; died in St. Agnes Hospital February 9, aged 90.

Harry E. Stowell, Peoria, Ill.; Reliance Medical College, Chicago, 1911; for many years practiced in Chicago, where he was affiliated with the board of health; died December 9, aged 64, of cardiac asthma.

Clinton Clement Straughn, Red Bank, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1896; member of the American Medical Association; on the staff of Fitkin Memorial Hospital in Neptune; died in Clearwater, Fla., January 24, aged 76, of coronary thrombosis.

Loren Gerald Strauss ⊕ Wooster, Ohio; Western Reserve University Medical Department, Cleveland, 1921; affiliated with Community Hospital; died January 11, aged 53, of hypertension and nephritis.

William Lee Sumners ⊕ Ridgely, Tenn.; College of Physicians and Surgeons, Memphis, 1907; past president of the Dyer, Lake and Crockett Counties Medical Society; died in Methodist Hospital, Memphis, recently, aged 70.

Charles Joseph Swalm ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1906; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; coroner's physician; on the staff of Jewish Hospital, where he died January 1, aged 64, of coronary thrombosis.

Arthur Van Dusen ⊕ Astoria, Ore.; Northwestern University Medical School, Chicago, 1914; fellow of the American College of Surgeons; past president of the Clatsop County Medical Society; affiliated with St. Mary's Hospital, where he died January 18, aged 61, of heart disease.

DIED WHILE IN MILITARY SERVICE

John William Anderson, Nashville, Tenn.; College of Medical Evangelists, Loma Linda and Los Angeles, 1938; member of the American Medical Association; interned at the North Hudson Hospital in Weehawken, N. J.; served a residency at Vanderbilt University Hospital in Nashville; certified by the National Board of Medical Examiners; began active duty as a captain in the medical corps, Army of the United States, on June 1, 1942; served with the 69th Bombardment Squadron; died Sept. 10, 1945, aged 33, when his airplane was lost somewhere in the Pacific theater.

Joseph Assiof Corey, Waterbury, Conn.; Université de Genève Faculté de Médecine, Switzerland, 1938; affiliated with St. Mary's Hospital; captain in the medical corps, Army of the United States; died in Halloran General Hospital, Staten Island, N. Y., May 31, 1946, aged 39, of carcinoma of the stomach.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 12, 1949.

National Health Service Bill Passed in Australia

In 1940 the Australian Government began to prepare a scheme for a National Health Service and with the Australian branch of the British Medical Association entered into negotiations which have gone on ever since, but no agreement has been reached. Unlike the parent body at home the Australian branch rejected the government scheme and made a firm stand against it. The federal parliament has at last passed an act in spite of failure to obtain agreement with the British Medical Association. It provides a complete medical, dental and nursing service for all and medical education and research. Unlike the British service the Australian is not entirely free. The government proposes to pay 50 per cent of the fee charged by the doctor in accordance with a prescribed schedule.

The Australian branch of the British Medical Association wants the control of the service to be in the hands of a corporate body composed predominantly of doctors instead of under a director general of health as proposed by the government. It fears the encroachment of state control over all aspects of medical practice, particularly because the act allows the government to make regulations which would bring the whole medical profession under its complete control. At a meeting of the council it was held that no regulations should be promulgated unless they have first been approved by the corporate body. The council also pointed out that the system by which a doctor is to claim his fees for items of service rendered to patients involves a breach of his confidential relationship to patients. The clerical work and liabilities involved in acting as the agent for the patient in obtaining medical benefit are objectionable to practitioners. They would prefer a refund system by which the patient pays the whole fee to the doctor and claims a refund of half from the government. The council refuses to admit the right of the government to fix a fee of which it pays half.

The position has reached a complete impasse. The Minister of Health stated in a letter to the president of the Federal Council of the British Medical Association that the government has regretfully come to the conclusion that despite the splendid services rendered by the great number of practitioners "your association is grievously lacking in a sense of social responsibility. Having exhausted every endeavor to secure the cooperation of your Association, the Government does not intend that its proposals should be further delayed or frustrated by your Council or Association. I have to convey to you the decision of the Government that, within the limits of its constitutional power, the Government will proceed to put its plans into operation." The *Medical Journal of Australia* has made the comment: "The Government is determined to force on the people a piece of legislation that is foredoomed to failure."

This controversy between the British Medical Association and the government goes back as far as 1940. In 1941 the British Medical Association advocated a scheme providing for every person a general practitioner of his own choice, through whom consultant and laboratory services would be available. In July 1947 it offered to negotiate with the government on the basis of the following principles: (1) control by a corporate body; (2) no contract between the government and individual practitioners, and (3) payment on a fee for service basis. The *Medical Journal of Australia* of February 5 comments as follows: "The members of the medical profession cannot be expected to consent to take part in a service which, according to the expressly stated opinion of the Minister, has as its ultimate aim the abolition of private medical practice—in other words the denial of the freedom of the individual."

Excess of Cost of National Health Service Over Estimate

All the undertakings of the socialist government show one thing with melancholy monotony—increased cost. The official figures, just issued, for the National Health Service are no exception. The cost of doctors is $118,000,000, an excess of $9,200,000 over the estimate. The cost of dentists is $82,800,000, an increase of $54,600,000. The cost of pharmacists is $70,860,000, an increase of $20,000,000 over the estimate. The cost of opticians is $57,800,000, an excess of $15,000,000 over the estimate. A large part of this vast expenditure is wasted, as is so characteristic of socialist finance.

PARIS

(From Our Regular Correspondent)

Feb. 20, 1949.

Influenza Epidemic in France

The outbreak of the first cases of the present influenza epidemic in France dates back to Dec. 15, 1948. Apart from some districts in the South, which remained unaffected, on January 10, the whole of the country was involved. The epidemic reached its height on January 10, and, at the same time, the districts which were the first subjected to the epidemic already showed signs of regression. In general, the evolution of this influenza has remained benign, though convalescence has been slow. Complications, mostly bronchopneumonic, did not surpass 10 per cent. Severe, and even deadly, forms have been rarely noted in adults, but, to the contrary, frequent in old persons and infants.

Bacteriologic Researches

As from the onset of the epidemic, the Pasteur Institute has asked the practitioners, in order to facilitate research, to furnish two samples of serum from influenza patients: the first at the beginning of the disease and the second ten to twelve days later. P. Lepine, Chief of Service at the Pasteur Institute, Sautter, R. Reinie and J. Maurin have communicated to the Society of Biology the first results of their researches. In the great majority of cases, there is a virus of group A and especially group A′ which might belong to the same antigenic group as the one isolated in 1947-1948 in England and in the United States.

R. Panthier, Mrs. Cataigne and C. Hannon have communicated to the Academy of Sciences the results of their researches concerning a strain named D. 48, isolated from the washings of a patient with severe influenza. The culturing has been effected through the amniotic route, in the fertilized egg. The authors have also demonstrated the possibility of growing this virus directly in the white mouse. The serologic study, made with experimental serums, has shown that this strain is not identical with the classic ones: A.PR 8, AWS or B. Lee. In the patient's blood, from which D. 48 has been isolated, the authors have noted, by the end of the disease, antibodies against this strain and also the absence of antibodies against classic strains. Andrewes has also observed in it antibodies against strain A 47 isolated in England. The authors have inoculated 2 young Cercopithecus monkeys, one with 0.5 cc. of the virulent allantoic fluid, the other with the same quantity of this fluid diluted ten times. The first inoculated monkey, on the point of dying, was killed forty hours after the inoculation. Autopsy showed a discolored liver, lung congested with a beginning of hepatization of a lobe. The fluid of the bronchial washing contained, besides numerous polymorphonuclear leukocytes, large cells with a central nucleus filled with small vacuoles, similar to those found in the liquid of the tracheal washing of a 2 year old child who had died of pulmonary edema in the course of this epidemic. The second monkey, killed, when sick, three days after the inoculation, showed the same alteration in the liver; in the lung was edema with lardaceous hepatization, and in the bronchial washing there were numerous cells similar to the ones found in the infant patient.

Compulsory Vaccination in Certain Private and Public Institutions

The beginning of a smallpox epidemic, observed in 1947, and the effectiveness of a massive vaccination performed during this period have suggested to the Minister for Public Health the establishment of a new regulation for a compulsory vaccination against variola, typhoid, paratyphoid A and B, diphtheria and tetanus. This new law, published in the *Journal Officiel* on January 21, includes the public and private benevolent institutions for prevention or treatment, all sanitary services, nurseries, kindergartens, laboratories for medical analysis and the services of control at frontiers. All persons employed in any of these establishments are to be revaccinated within six months; persons having temporary or definitive medical contraindications are provisionally or definitely exempted. A special list is to be kept in each of these establishments and is to be presented when required by the control authorities.

Restoration of Professor Roussy's Good Name

The Academy of Sciences, and recently the National Academy of Medicine, have proposed that the name of Professor Gustave Roussy be given to the Villejuif Cancer Institute in order to perpetuate the memory of this great scientist, who died so tragically. The examination of the file concerning his case has revealed that the serious accusation made against him before the Civil Jurisdiction was groundless. In this way the Academy of Sciences and the National Academy of Medicine (of which he was perpetual secretary) desired to rehabilitate the name of Professor Roussy, late Vice-Chancellor of the Paris Academy.

OSLO

(From Our Regular Correspondent)

March 9, 1949.

Trouble Over National Health Insurance

Under a system of national health insurance, doctors in Norway are paid out of the insurance fund so many kroner for every consultation in the surgery, for every visit to a patient and for traveling expenses according to a scale of charges which varies with the mode of conveyance—motorcar, motorboat or "the Apostles' horses." Up to 1925, the insured patient paid the doctor nothing for these items. Since then he has had to pay a certain fraction of them himself, to ease the insurance fund directly and, by discouraging unnecessary consultations, indirectly. No one wishes to go back to the days when a doctor was often in doubt over what, if anything, to charge his poorer patients.

But what battles have been fought with the health insurance authorities by the Norwegian Medical Association over scales of charges! With the enormous rise in the cost of living, it was obvious that there must be a parallel, if not equal, rise in the doctor's charges. After much discussion agreement was reached on April 1, 1948, when it seemed that every one was satisfied with the new scale designed to meet some at least of the rise in the cost of living. But the Government had afterthoughts over the concessions made to the association, and it was recently announced that, as from Jan. 13, 1949, a new scale would be imposed on the doctors as a Government order. One of the most important differences between the two scales is that the latter fixes a hard and fast upper limit of charges, whereas the scale of April 1 was to be regarded merely as a guide to charges under ordinary conditions. Under extraordinary conditions these charges could be raised. The association has declared the Government's proposed action to be illegal and has threatened to go to law over it.

The conflict now shifted to Parliament, the Storting debating it in February with a certain liveliness. During the debate, the country's legislators were given ample opportunity to say all the nice and other things they thought about their doctors. On behalf of them one speaker pointed out that a specialist with an international reputation could hardly be expected to keep his charges within the narrow limits of the Government's new scale. On the other hand, it was argued that the legal action threatened by the association was a sign of arrogance on the part of a profession wishing to be in a class by itself, objecting to the restrictions imposed on all other members of the community. The word "dictatorship" was bandied about, and the debate ended in a unanimous recommendation to the Government to resume negotiations with the association. This means that there will now be a searching investigation of the justice of the claims of the association.

Whither the Practice of Medicine in Norway?

In a document recently issued, the Norwegian Labor Government has let it be known what it would like to plan for the future with regard to the health of the nation. It would like every patient to enjoy free medical treatment and to be free to choose his doctor. It would like the doctor to be paid in such a way that his income did not depend on the sickness of a given patient. In other words, it would prefer the English system of a fixed annual sum for every insured person instead of the present Norwegian system. It would also like to control the distribution of doctors so that sparsely populated areas do not suffer for lack of medical skill. The Government is also anxious to develop a system of remuneration which would stimulate doctors to keep the quality of their work up to a high standard.

Unfair Taxation of Young Doctors

With a logic reminiscent of Columbus and his egg, the Norwegian Government has introduced a tax the object of which is to pocket most of the rise in the capital value of its citizens during World War II. The war profiteer, active or passive, was to disgorge. This tax, so admirable in theory, hits many a young doctor hard. Let us take the medical student who had just qualified as a doctor early in 1940, and who started life with no capital. During the war his work might give him no hospital training, of which he was badly in need, but he was able to put by several thousand kroner which he earmarked for future postgraduate study spread over several years during which he would earn next to nothing. Is it surprising that he feels annoyed when the tax collector claims his savings?

An Asthma Survey

The Norwegian Association of Physicians appointed a committee early in 1948 to investigate asthma problems in Norway. According to the report recently issued by this committee there are no accurate figures concerning the frequency of this condition, but one of the committee's members has calculated that in Norway, with a population of a little over 3,000,000, there are some 12,000 persons with asthma, among whom there are about 700 adults entirely unfit for work on account of this disease. The others are more or less invalids. The committee reports on the available hospital accommodation for persons with asthma and recommends a much more systematic handling of the asthmatic person's problems than hitherto. It is suggested to general practitioners that, while they continue to treat asthmatic persons, they would be well advised to invoke the aid of specialists in this field. For some two-thirds may achieve prolonged freedom from symptoms or at any rate considerable improvement if they can enjoy the benefits of up-to-date treatment given systematically and with due reference to the special needs of each case.

Correspondence

ANTABUS® FOR ALCOHOLISM

To the Editor:—As you know, a new approach to the medical management of alcoholism was recently reported in the Scandinavian as well as the British literature (*Acta pharmacol. et toxicol.* 4: 285-321 [Dec.] 1948; *Lancet* 2: 1001 [Dec. 25] 1948). The substance used was antabus,® a highly purified brand of tetraethylthiuramdisulfide specially prepared by Medicinalco, Copenhagen, Denmark. Antabus® is capable of producing pronounced physical discomfort when it is taken prior to the ingestion of alcohol and tends to create in the alcoholic patient a disinclination to drink. On this basis, its value as an adjunct to recognized psychotherapeutic measures has been suggested (*Lancet* 2: 1004 [Dec. 25] 1948).

Because of the sociologic significance of this development, widespread interest has been aroused by the publicity which antabus® has received in the United States. This letter is sent to you with the thought that it may provide a means of informing the medical profession of the status of antabus® in this country.

Ayerst, McKenna & Harrison, Limited, have recently concluded arrangements with the Danish pharmaceutical firm, Medicinalco, for rights to manufacture and distribute antabus® in the United States.

Antabus® is considered a "new drug" under the terms of the Federal Food, Drug and Cosmetic Act of 1938, and cannot be released nationally for prescription use until the requirements of the Act are met.

In order to obtain the clinical and pharmacologic data necessary to comply with the regulations of the Food and Drug Administration, a series of controlled studies have been inaugurated, or are in the process of being established, in a selected number of institutions and clinics devoted to the study and treatment of alcoholism throughout the United States.

In view of the overwhelming number of requests for investigational material received from the medical professional at large, distribution must, of necessity, be restricted to the institutions or groups of investigators providing the most favorable conditions for the evaluation of the therapeutic effectiveness and toxic properties of antabus® on an extensive scale.

We are sorry that we cannot take advantage of all the offers of clinical assistance we have received, nor are we able to provide supplies of antabus® for investigational studies other than those which are scheduled within the present economy of this project. The cooperative understanding of the many physicians whose requests must be turned down is therefore solicited.

J. Murray Scott, M.D.
Medical Director,
Ayerst, McKenna & Harrison, Ltd.,
New York.

DETECTION OF DIABETES

To the Editor:—In regard to the most interesting letter of Dr. R. W. Brown of Ogden, Utah, regarding the advisability of placing into the hands of the laity a simple test for glycosuria to facilitate early and widespread detection of diabetes mellitus (The Journal, February 12, page 474), as Secretary of the American Diabetes Association I should like to call attention to the fact that this fascinating proposal is not new and has recently been called to the attention of the Council of the American Diabetes Association by the profession itself. It has been advised that just as the clinical thermometer, given by the profession to the laity, has been well used by the latter, so might a simple test for glycosuria made available to the entire population by the medical profession serve to break the problem of finding the unknown million persons with diabetes in this country. It has been pointed out that such a step would have such far reaching public health implications as to serve as one more concrete evidence *that the medical profession* is rightfully a custodian of the health of the people.

The plan presented for consideration by the Council of the American Diabetes Association was that manufacturers of simple tests for glycosuria be invited to present their products to the American Diabetes Association for use in connection with its year-round drive for detection of diabetes. One or more simple tests meeting the needs for rapid, easy determination of urine sugar, it was suggested, should be approved by the association. The publicity suggested was: "Are you one of the Unknown Million Diabetics in America? See your doctor or test your own urine by a simple method recommended by the American Diabetes Association! Ask your druggist." It was further suggested that these individual tests be sold at a small price over the drug counter. If the clinitest® type of tablet as suggested by Dr. Brown were used there would be included in each package printed suggestions: "Pass urine one and one-half hours after a heavy meal; if any color other than blue develops it means you have sugar or a sugar-like substance in your urine. *See your doctor for a diagnosis.* Remember that sugar in the urine does not necessarily mean that you have diabetes. Only your doctor, with the aid of further laboratory data, can evaluate the situation and make a diagnosis. This is a test only for sugar in the urine." It was alleged that the doctors and clinical pathologists of this country would see thousands of persons who presently do not know they have diabetes. The profession would be in a position to fight the disease in its early and possibly reversible stages or, at least, before any of the dire complications had developed. A by-product of the individual testing would be the stimulating of the patient to seek further health examination; to wit, "This is a test only for sugar in the urine."

The American Diabetes Association is an arm of the medical profession. All of its organized drive activities to find the unknown million persons with diabetes have to date been undertaken only in communities where the respective county medical societies have given their full approval. Under no conditions would the association depart from its policy of working for the common good, entirely through the channels of medicine.

The association would at this time invite not only editorial comment but also the point of view of the rank and file of the profession of which it is a part.

It is hoped that the following questions will be answered by the medical profession:

1. Should one or more such simple tests for glycosuria sponsored by organized medicine be placed in the hands of the public?

2. Would it be constructive for public health that the test for glycosuria in relation to diabetes be made analogous to that of spot roentgenographic surveys in tuberculosis detection?

3. Should the American Diabetes Association further explore and foster this proposed service?

Dr. Brown's letter is most timely and provocative. It is up to organized medicine to express itself in this matter.

George E. Anderson, M.D.,
Secretary, American Diabetes Association,
1 Nevins St., Brooklyn.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* Various Centers. June 20-22, Sept. 12-14. *Part II.* April 25-26. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology, Inc. *Written.* Various Centers. July 15: Final date for filing application is April 15. *Oral.* April 10-14 and Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

American Board of Dermatology and Syphilology: *Oral.* New York City, April 1-3. Sec., Dr. George M. Lewis, 66 East 66th Street, New York 21.

American Board of Internal Medicine: *Oral.* Philadelphia, June 1-3. *Written.* Oct. 17. Final date for filing application is May 1. Asst. Sec.-Treas. Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

American Board of Neurological Surgery: *Oral.* Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

American Board of Obstetrics and Gynecology, Inc.: *Oral.* Chicago, May 8-14. Final date for filing application is April 1. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

American Board of Ophthalmology: *Oral.* New York, June 11-15; St. Louis, Oct. 15-19; Boston, December. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

American Board of Orthopaedic Surgery. *Part I.* New York City, April 22-23; Atlanta, Ga., April 29-30; Indianapolis, May 6-7 and Denver, May 13-14. *Part II.* New York City, Jan. 1950. Final date for filing application for Part II is Aug. 15. Address: Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14, Calif.

American Board of Otolaryngology: New York, May 11-14; Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

American Board of Pathology: Boston, April 12-13. Sec., Dr. Robert A. Moore, 507 S. Euclid Ave., St. Louis 10, Mo.

American Board of Pediatrics: *Oral.* Baltimore, May 7-9. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Rd., Rosemont, Pa.

American Board of Physical Medicine. Atlantic City, June 4-5. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

American Board of Plastic Surgery: Examinations are given in June and November of each year in the home town of applicants. Sec.-Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

American Board of Preventive Medicine and Public Health: Washington, D. C., May 14-16. Sec.-Treas., Dr. Ernest L. Stebbins, 615 North Wolfe St., Baltimore.

American Board of Psychiatry and Neurology, Inc. December, New York City. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Radiology. Atlantic City, June 2-4. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery: *Written.* Various Centers, October 26. Final date for filing application is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

American Board of Urology: Feb. 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

Arkansas: * Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 9-10. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

California: *Examination.* San Francisco, June 20-23. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

Colorado: * *Endorsement,* Denver., April 5. *Written,* Denver, June 20-22. Sec., Dr. W. W. King, 831 Republic Bldg., Denver 2.

Delaware: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

District of Columbia: * *Written,* Washington, May 9-10. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., Washington.

Florida: * *Examination,* Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

Georgia: *Examination.* June 8-9, Atlanta and Augusta. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Guam: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam. % F.P.O., San Francisco, Calif.

Hawaii: * *Examination.* Honolulu, July 11-14. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

Idaho: Boise, July 11-13. Sec., Miss Estella S. Mulliner, Bureau of Occupational Licenses, 355 State House, Boise.

Illinois: Chicago, April 12-14. Supt. of Registration, Mr. Fred W Ruegg, Capitol Bldg., Springfield.

Indiana: *Examination.* Indianapolis, June 21-23. Sec. Board of Medical Registration and Examination. Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

Iowa: * *Examination.* Iowa City, June 13-15. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

Kansas: Kansas City, June 1-2. Sec., J. F. Hassig, 905 North 7th St., Kansas City, Kans.

Kentucky: *Examination.* Louisville, June 15-17. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville 2.

Maryland: *Examination.* Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 14-15. Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

Minnesota: * Minneapolis, April 19-21. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: Jackson, June 21-22. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

Missouri: *Examination.* St. Louis, May 30-31 and June 8-10. Exec. Sec., Mr. John A. Hailey, Box 4, Jefferson City.

Montana: Helena, April 4-6. Sec., Dr. O. G. Klein, First National Bank Building, Helena.

Nebraska:* *Examination.* Omaha, June 6-8. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9

Nevada: Carson City, May 2. Sec., Dr. G. H. Ross, 112 N. Curry Street, Carson City.

New Jersey: *Examination.* Trenton, June 21-24. Sec., Dr. E. H Hallinger, 28 West State Street, Trenton 8.

New Mexico: * Santa Fe, April 11-12. Sec., Dr. V. E. Berchtold, 141 Palace Ave., Santa Fe.

New York: Albany, Buffalo, New York and Syracue, June 28-July 1, Sec., Dr. Jacob L. Lochner, 23 South Pearl St., Albany.

North Carolina: *Endorsement.* Pinehurst, May 9. *Examination* Raleigh, June 23-25. Sec., Dr. Ivan Procter, 226 Hillsboro St., Raleigh.

North Dakota: * *Written,* Grand Forks, July 5-7. *Reciprocity,* Grand Forks, July 8. Sec., Dr. C. J. Glaspel, Grafton.

Ohio: *Endorsement.* Columbus, April 5. *Written.* Columbus, June Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Oklahoma: * Oklahoma City, June 8-9. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon: * *Endorsement.* Portland, April 29-30. *Examination.* Portland, July. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

Pennsylvania: *Examination.* Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.

Puerto Rico: San Juan, Sept. 6-10. Sec., Dr. Luis Cueto Coll, Box 3717, Santurce.

Rhode Island:* *Examination.* Providence, April 7-8 and July 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Carolina: *Examination.* Columbia, June 27-29. *Endorsement.* Columbia, March 7, April 4, May 2, June 27-28, Aug. 1, Sept. 5 and Oct. 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

South Dakota: * *Examination.* Pierre, July 19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

Texas: *Examination.* Austin, June 16-18. Sec., Dr. M. H. Crabb. 209 Medical Arts Bldg., Fort Worth 2.

Utah: *Examination.* Salt Lake City, July. Sec., Dept of Registration. Miss Rena B. Loomis. 324 State Capitol Bldg., Salt Lake City.

Virginia: *Examination.* Richmond, June 17-18. *Reciprocity.* Richmond. June 16. Dr. K. D. Graves, 631 First St., S.W., Roanoke.

Washington: * Seattle, July. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

West Virginia: Charleston, April 7-9. Sec., Dr. N. H. Dyer, State Capitol, Charleston 5.

Wisconsin: * *Examination.* Milwaukee, June 28-30. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

Wyoming: Cheyenne, June 20. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

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* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arkansas: *Examination.* Little Rock, May 3. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.

Colorado: *Examination.* Denver, June 1-2. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

Connecticut: New Haven, June 11. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., New Haven 10.

District of Columbia: *Examination.* Washington, April 18-19. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., Washington.

Florida: *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

Iowa: *Examination.* Des Moines, April 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Michigan: *Examination.* Detroit and Ann Arbor, May 13-14. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

Minnesota: *Examination.* April 4, June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

Oklahoma: April 15. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon: Portland, June 18, Sept. 3 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

South Dakota: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St,. Yankton.

Tennessee: Memphis, July 8-9. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

Wisconsin: Milwaukee, June 4. Sec., Prof. W. H. Barber, Ripon College, Ripon.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

36:641-800 (Nov.) 1948

*Amount of Digitoxin (Digitaline Nativelle) Required for Adequate Digitalization. H. J. Stewart and A. A. Newman.—p. 641.
Continuous Observations of Arterial Oxygen Saturation at Rest and During Exercise in Congenital Heart Disease. G. E. Montgomery Jr., E. H. Wood, H. B. Burchell and others.—p. 668.
Coronary Artery Disease in Men Eighteen to Thirty-Nine Years of Age: Report of 866 Cases, 450 with Necropsy Examination. W. M. Yater, A. H. Traum, W. G. Brown and others.—p. 683.
*Clinical Evaluation of Veratrum Viride in Treatment of Essential Hypertension. E. D. Freis and J. R. Stanton.—p. 723.
Effect of Posture Upon Axis Deviation in Human Bundle Branch Block. A. M. Jones and H. Feil.—p. 739.
Determination of Levo- and Dextrocardiogram. M. Segers.—p. 751.
Further Experience with Thromboangiitis Obliterans in Women. S. Silbert.—p. 757.
Case of Paradoxical Embolism. C. A. Ross and P. H. Sprague.—p. 772.
*Extreme Bradycardia: Report of Case Exhibiting Ventricular Rate of Less Than Twelve per Minute. J. C. Doane and S. O. Krasnoff.—p. 777.

Amount of Digitoxin for Adequate Digitalization.—In their studies on digitoxin Stewart and Newman chose patients with auricular fibrillation because the slowing of the ventricular rate is a satisfactory guide to digitalis effect. Their investigations were made on 26 patients and included two phases: (1) The hospital records of all patients from 1942 to 1946 having auricular fibrillation who received digitoxin were reviewed to ascertain the effect of this drug on ventricular rate, and (2) observations were made on the amount of digitoxin required to produce full digitalization in patients with auricular fibrillation. The average amount of digitoxin required for adequate digitalization in this series was around 2.0 mg. if given in twenty-four hours. There is no difference whether the drug is given in one single dose or in divided doses. When adequate slowing of the heart is attained, nausea and vomiting occur more frequently with digitoxin than with the whole leaf. The average maintenance amount of digitoxin is between 0.1 and 0.2 mg.; 0.2 mg. is too much in most patients who have been adequately digitalized. It is more difficult to keep patients in equilibrium by maintenance doses of digitoxin than with the whole leaf. Although large amounts of the drug in a single dose were given in this series of patients *in order to arrive at the digitalizing amount in twenty-four* hours, this procedure is not recommended for general use. Since digitalization with divided doses of digitoxin is effective in patients with auricular fibrillation, the same system of dosage can be transferred to patients with normal rhythm in whom the heart rate does not serve as a guide. In hyperthyroidism with auricular fibrillation, larger amounts of digitoxin are required to achieve slowing of the ventricular rate than in patients with normal basal metabolic rates, an experience which is similar to that observed when the whole leaf is used.

Veratrum Viride in Hypertension.—Freis and Stanton report the results of a clinical trial of Veratrum viride in 40 patients with hypertension. The substance was administered orally in the form of the whole powdered mixture of alkaloids. When the drug was administered by the oral route, the hypotensive effect began to appear at the end of one or two hours, reached a maximum in four or six hours and largely disappeared by the end of fourteen hours. In order to obtain maximum therapeutic benefit and to avoid toxic reactions resulting from cumulative overdosage, the drug was administered at dosage intervals of twelve hours. In addition, in order to provide greater therapeutic safety, this dosage interval was further subdivided so that no more than 10 Craw units were ingested per hour. The great variability of response to a given dose in different persons required the gradual increase of dosage in each patient in order to avoid toxic side effects. Veratrum was found to be a useful therapeutic agent in the treatment of patients with (*a*) "hypertensive crisis," (*b*) severe long-standing hypertensive disease which proved resistant to other forms of treatment and (*c*) hypertension complicated by cardiac failure. Prolonged therapy in some cases resulted in a diminution in cardiac size and reversal of electrocardiographic changes toward normal. There were no deaths and no toxic reactions resulting in more than transient disability. However, the development of side effects and of changing sensitivity to a given dose were sufficiently frequent to limit its usefulness in the treatment of patients with mild or moderate degrees of hypertension. Veratrum viride appeared to have therapeutic value as an adjunct to dietotherapy and to the routine treatment of hypertensive heart disease.

Extreme Bradycardia.—Doane and Krasnoff present a patient with complete heart block whose ventricular rate during the last twelve hours of his life varied from 12.5 to 9.8 beats *per minute. The probable causative pathologic factor* was calcific deposits involving the auriculoventricular node and the right and left branches of the bundle of His. It appeared that ephedrine was a useful drug in increasing the ventricular rate and in lessening the frequency of the Stokes-Adams syndrome. As far as the authors have been able to discover, this patient *exhibited the slowest ventricular rate ever recorded by the* electrocardiograph in man.

American J. Obstetrics and Gynecology, St. Louis

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Renal Response to Thermal Stimulus. L. D. Odell, G. T. Aragon and R. C. Smitter.—p. 835.
*Elderly Primiparas. W. F. Geittmann, J. E. Fitzgerald and B. P. Zummo.—p. 846.
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*Peptic Ulcer in Pregnancy. J. B. Bernstine and M. H. F. Friedman.—p. 973.
Vagitus Uterinus in Twin Pregnancy with Prolapsus Funis and Its *Treatment Under Continuous Caudal Analgesia. J. G. Crotty and* L. W. Kuehnle.—p. 977
Adenocarcinoma of Uterine Fundus in Identical Twins. J. P. Palmer and R. W. Mitchell.—p. 981.

Elderly Primiparas.—Geittmann and his associates report a study of elderly primiparas, 35 years of age and over, taken from the records of St. Luke's and Cook County Hospitals in Chicago, Ill. The cases from Cook County are those of charity service and those from St. Luke's are predominantly private cases. The patients were pregnant seven months or more and had viable babies on admission to the hospital. Elderly primiparas occur five times more frequently in the private series than on a charity service. Breech presentation occurred twice as often in elderly primiparas as in all cases. Only one multiple pregnancy and one shoulder presentation occurred in 417 cases of elderly primiparas. The maternal death rate was 0.46 per cent in elderly primiparas at St. Luke's as compared with 0.2 per cent in all cases, while at Cook County it was 0 per cent as compared with 0.15 per cent in all cases. Corrected fetal mortality was 0.9 per cent and 3.94 per cent, respectively, at St. Luke's and Cook County hospitals, as compared with 1.3 per cent and 2.04 per cent in all cases. Preeclampsia, hypertensive toxemia and fibroids are the most common complications of pregnancy in elderly primiparas. Prolonged labor occurred in 23.3 per cent of the elderly patients at St. Luke's and 12.8 per cent at Cook County. Postpartum hemorrhage occurred more frequently in elderly primiparas at St. Luke's, where there was a higher operative incidence. Approximately 80 per cent of the elderly primiparas will deliver vaginally and 75 per cent of these with short or average labors. The cesarean section rate was 18.2 per cent at Cook County and 22.4 per cent at St. Luke's, as compared with 2 per cent and 4.4 per cent in all cases.

Peptic Ulcer and Pregnancy.—Bernstine and Friedman report 3 cases which indicate that if progesterone is administered to pregnant women to prevent threatened abortion there is likelihood that if the woman has a history of peptic ulcer the ulcer may become aggravated. Duodenal ulcer occurs less frequently in women than in men and is a rare complication of pregnancy. In women known to have had peptic ulcer, its symptoms almost always disappear with the advent of pregnancy. In the 3 reported cases, the history suggested or proved the existence of an ulcer prior to pregnancy. The ulcer symptoms abated during the early stages of the pregnancy in all 3 women; yet the later administration of progesterone was followed in each case by an aggravation of the ulcer, by hemorrhage and a stormy course almost terminating fatally. An endocrine basis has been suggested for peptic ulcer and investigators have reported beneficial effects with gonadotropin. The relationship between progesterone and gonadotropin is such as to indicate possible antagonism between them. The beneficial effect of gonadotropin on peptic ulcer would suggest the adverse action of progesterone.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

60:587-722 (Nov.) 1948

Small Intestinal Motility in Acute Dysentery. G. P. Keefer.—p. 587.
Pyloric Obstruction More Accurately Demonstrated by Food-Barium Mixture. V. W. Archer and G. Cooper Jr.—p. 593.
Carcinoma of Stomach: Its Incidence and Detection. B. R. Kirklin and J. R. Hodgson.—p. 600.
Roentgenologic Significance of Hamartoma of Lung. W. C. Hall.—p. 605.
*Calcified Omental Fat Deposits: Their Roentgenologic Significance. J. F. Holt and R. S. MacIntyre.—p. 612.
*Post-Irradiation Neuropathy. M. M. Greenfield and F. M. Stark.—p. 617.
Multiple Osteogenic Sarcoma: Report of 2 Cases. A. J. Ackerman.—p. 623.
Osseous Dysplasia and Dystrophy of Nails: Review of Literature and Report of Case. R. A. Mino, V. H. Mino and R. G. Livingstone.—p. 633.
Roentgen Demonstration of Calcification of Cardiac Skeleton and Coronary Vessels in the Living. H. G. Koiransky and I. K. Ettman.—p. 642.
Angiocardiography Utilizing Photoroentgen Apparatus with Rapid Film Changer. H. L. Temple, I. Steinberg and C. T. Dotter.—p. 646.
Evaluation of Phlebography of Normal Lower Extremity. B. S. Epstein, M. G. Wasch and L. Loewe.—p. 650.
Cholecystocolic Fistula Diagnosed by Roentgen Examination: Case Report and Review. D. L. Jenkinson and H. M. Lowry.—p. 658.
Use of Roentgen Ray in Body Measurements: Mathematical Method: Preliminary Report. L. O. J. Manganiello.—p. 664.
Theory and Technic of Simultaneous Tomography. M. de Abreu.—p. 668.

Calcified Omental Fat Deposits.—Holt and MacIntyre observed several patients in whom roentgenograms of the abdomen have shown confusing areas of calcification. They cite 4 cases. The deposition of calcium salts in omental fat is probably the result of (1) local interference with blood supply, (2) inflammatory or traumatic pancreatic fat necrosis, or (3) any infectious process causing caseation necrosis. Neither calcified omental fat deposits nor calcified epiploic appendages have a typical roentgenographic appearance. Like pathologic calcification of fat occurring in many other portions of the body, these abdominal concretions are round or oval in shape, and have a greater concentration of lime salt in their outer margins than in their central portions. This feature is of little value in differentiating omental fat deposits from gallstones and fecaliths of appendix and small intestine, but it is helpful in excluding urinary tract calculi, calcified lymph nodes, and other forms of intra-abdominal calcifications which have a different and sometimes characteristic roentgenographic appearance. One of the most instructive features is the great mobility of the greater omentum. Omental calcifications have been identified roentgenographically in widely separated regions of the abdomen within a relatively short span of time.

Postirradiation Neuropathy.—Greenfield and Stark report on 180 cases of carcinoma of the testis treated with intensive million volt roentgen therapy to the retroperitoneal node-bearing area following simple or radical orchectomy. The use of roentgen rays generated at 1,000,000 volts made possible the delivery of much larger doses to the retroperitoneal nodes and adjacent deep tissues than had been previously employed. In 3 patients a peculiar neurologic disturbance developed. They showed a strikingly similar clinical picture. The first muscular weakness in the lower extremities was noted from three to five months after completion of the roentgen therapy. Progression was slow but continuous for about one year, with tendency for the condition to level off and become stationary after that time. There was a flaccid paralysis of the lower extremities without sensory loss. The chief site of nerve injury was believed to be the anterior horn cells in the lumbosacral segments of the spinal cord.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

32:509-638 (Nov.) 1948

*Treatment of Late Symptomatic Neurosyphilis at Boston Psychopathic Hospital: Study of Results of Penicillin Therapy in 394 Patients Treated Between February, 1944 and March, 1948. I. Kopp, A. S. Rose and H. C. Solomon.—p. 509.
*Long-Term Results in Neurosyphilis Treated with Penicillin Alone. J. H. Stokes, M. S. Falk and G. D. Gammon.—p. 521.
*Neurosyphilis: Evaluation After Two Years of Treatment with Penicillin Alone and with Combination of Penicillin and Malaria. A. C. Curtis, S. F. Horne and Dorothy H. Norton.—p. 546.
Spinal Fluid and Blood Complement Fixation Reversal in Neurosyphilis. Y. T. Wong and H. Packer.—p. 565.
Syphilitic Primary Optic Atrophy as Cause of Blindness; Importance of Early Diagnosis. J. V. Klauder, G. P. Meyer and B. A. Gross.—p. 574.
Acute Syphilitic Meningitis: Report of 80 Cases. O. A. Pardo and T. W. Farmer.—p. 587.
Vagotomy in Treatment of Gastric Crises of Tabes Dorsalis. C. W. Stoops Jr., L. S. Markson, J. M. Sullivan and J. Kanter.—p. 599.

Treatment of Late Symptomatic Neurosyphilis.—Kopp and his co-workers treated 394 patients with neurosyphilis with penicillin at the Boston Psychopathic Hospital from February 1944 to March 1948. Three hundred and five of the patients had dementia paralytica. Penicillin alone in 3,000,000 or 6,000,000 unit dosages over a period of five to fifteen days was administered to 94 patients, and penicillin combined with fever to 300 patients. Fever treatment was given in amounts equivalent to one half of the usually accepted course. Thirty-two patients died, but in only 16 (4 per cent) can death be attributed to the syphilitic process. Twenty-four patients (6 per cent) have been lost to clinical follow-up. Of 274 living patients followed one year or more, 170 (62 per cent) have improved. The clinical syndrome is of considerable importance in the therapeutic results obtained. Of 59 nonpsychotic paretic patients 50 (85 per cent) have improved. Of 211 psychotic patients 117 (55 per cent) have improved, with improvement ranging from 12 (25 per cent) in 48 patients with schizophrenic-like syndromes to 18 (90 per cent) in 20 patients with manic-depressive types. These factors must be taken into consideration when comparing the result of treatment from different clinic groups. Penicillin administered over a fifteen day period and combined with fever therapy gave better clinical results than when given for ten days or less. Clinical improvement resulted in 37 (71 per cent) of 52 patients in the former category and in 46 (58 per cent) of 79 patients in the latter. No significant difference was observed when 3,000,000 or 6,000,000 units of penicillin was used. Retreatment was more frequent when penicillin alone was used, 28 (52 per cent) of 54 patients, in contrast to 45 (21 per cent) of 219 patients to whom combined fever and penicillin was given. Retreatment was more frequent when 3,000,000 units of penicillin was used with or without fever. A short course of malaria therapy when added to penicillin given over a fifteen day period is equal to or superior to any treatment thus far known in late symptomatic neurosyphilis.

Results in Neurosyphilis Treated with Penicillin Alone.—The report by Stokes and his co-workers is the fifth in a series presented by the University of Pennsylvania on the treatment of neurosyphilis with penicillin alone. In some of the total of 537 cases the fourth year has now been reached, and longer. The results of the serial examinations of spinal fluids and parallel clinical data sustain the record of the third year in this series and show a recognizable increase in the proportion of normal, near normal and markedly improved spinal fluids obtained over previous reports. Forty-six per cent of paretic, 60 per cent of taboparetic and 80 per cent of tabetic patients with type III spinal fluids now have normal or near normal spinal fluids. Sixty per cent of patients with meningovascular syphilis and 74 per cent of those with asymptomatic neurosyphilis have a similar status. Like the results presented in 1946, though to an even greater degree, these figures suggest that penicillin is superior to other forms of treatment for all types of neurosyphilis and certainly entitled, on the scores of safety, convenience and effectiveness, to first choice.

Treatment of Neurosyphilis with Penicillin Alone and with Malaria.—From a total of 539 patients with neurosyphilis who have been treated with penicillin alone or with penicillin and malaria, 223 were followed by Curtis and his co-workers for one year and 104 of these for two years after treatment. Patients with asymptomatic neurosyphilis, meningovascular syphilis and tabes dorsalis respond as well to a regimen of penicillin alone as to one of penicillin and malaria. This response was apparent in both the clinical evaluation and spinal fluid improvement of these patients. Patients with paresis and taboparesis responded as well in the clinical evaluation of their symptoms to penicillin alone as they did to a combination of penicillin and malaria. The latter regimen retains a slight superiority after two years of observation, if the improvement of the spinal fluid is used as the sole index of comparison. A longer period of post-treatment observation seems indicated before any final conclusion can be drawn regarding the efficacy of penicillin alone in the treatment of this group. The response of patients with the several types of neurosyphilis seems to be more rapid when the combination of penicillin and malaria is used. Even in taboparesis and paresis, there are indications that penicillin therapy alone will eventually prove as effective as its combination with malaria therapy. Treatment with penicillin alone is far less hazardous.

Archives of Ophthalmology, Chicago

39:451-562 (April) 1948

American Ophthalmology During the Past Century. F. H. Verhoeff.—p. 451.
*Atrophy of Optic Nerve Due to Malnutrition: Report of 2 Cases. R. Eissler.—p. 465.
Studies in Experimental Ocular Tuberculosis: X. Effect of "Promin" and "Promizole" on Experimental Ocular Tuberculosis in Immune-Allergic Rabbit. A. C. Woods and E. L. Burky.—p. 471.
Dacryocystitis of Infancy: Review of One Hundred Cases. J. V. Cassady.—p. 491.
Spectral Transmission of Eye to Ultraviolet Radiation. V. E. Kinsey.—p. 508.
Real Significance of Centering a Contact Lens. J. I. Pascal.—p. 514.
Syndrome of Unilateral Recurrent Attacks of Glaucoma with Cyclitic Symptoms. A. Posner and A. Schlossman.—p. 517.
Congenital Grouped Pigmentation of Retina: Report of 2 Cases. P. Tower.—p. 536.
Crescentic Deformities of Lid Margin. S. A. Fox.—p. 542.
Cotton Sutures in Ophthalmic Surgery. J. W. Henderson.—p. 545.

Atrophy of Optic Nerve Due to Malnutrition.—Eissler presents the histories of 2 patients who had atrophy of the optic nerve probably as the result of severe malnutrition while they were prisoners of war for several years during the war in the Philippines. Detailed histories show that the visual difficulties were concurrent with other symptoms of vitamin deficiency and that the visual disturbances improved with an improvement in the diet. No attempt is made to determine lack of which vitamin may have caused the atrophy of the optic nerve or to determine whether the atrophy of the optic nerve was due to a primary disturbance in the ganglion cells of the retina, to optic neuritis or to retrobulbar neuritis. The author reviews the literature on the relation between vitamin deficiencies and optic nerve atrophy and suggests that this complication of malnutrition may be commoner now than the literature has indicated in the past. This greater frequency may be incident to the severe malnutrition to which some American prisoners of war were subjected.

Archives of Pediatrics, New York

65:527-590 (Oct.) 1948

Immunization Against Scarlet Fever. M. S. Cioffari.—p. 527.
*Radiation Therapy of Tonsils and Adenoids. E. M. Uhlmann, P. Rosenblum and S. J. Perlman.—p. 532.
Some Aspects of Right Upper Lobe Pneumonia in Children. A. I. Suchett-Kaye.—p. 546.
Turner's Syndrome in Male: Report of Case Showing Defects Such as Short Stature, Sexual Underdevelopment, Webbed Neck and Various Other Congenital Defects Without any Increased Urinary Pituitary Gonadotropins. G. B. Dorff, D. H. Appelman and A. Liveson.—p. 555.

Radiation Therapy of Tonsils and Adenoids.—Uhlmann and his associates believe that if temporary or permanent contraindications exist to tonsillectomy, such patients can often be treated by the application of radiation therapy. During the last ten years more than 1,500 patients received roentgen therapy for recurrent colds, throat infections, cervical lymphadenopathy, impaired hearing and other symptoms associated with an enlargement of the tonsils, or with the existence of hypertrophic lymphoid tissue in the pharynx, in the Tumor Clinic of Michael Reese Hospital. In order to evaluate the results obtained in these patients the authors have checked on 600 patients treated between 1938 and 1942. Of these 480 could be traced and examined. The average dose used was 125 r to each field in each treatment, both fields being treated the same day. The treatment was repeated twice in weekly intervals so that the total amount of radiation was given within two weeks, with a total of between 450 to 900 r, measured on the skin to two fields. This amount of radiation is a relatively small dose and well below the skin erythema dose. Reviewing the results obtained, the authors say that 25 per cent of all patients had a complete cessation of the symptoms for which they were treated, and 45 per cent had so much improvement that they were considered well. Almost one fifth of these two groups, who represent 70 per cent of the total number, underwent tonsillectomy without appreciable benefit before they were referred for radiation therapy. Of all patients in this study 16.6 per cent showed only temporary improvement, but in many instances this proved to be valuable, since the patients remained clinically well. In other instances, tonsillectomies which could not be carried out before radiation therapy now became feasible and improved the patient's condition. In 13.3 per cent radiation therapy proved to be a complete failure, but many of these patients offered poor prospects for any form of therapy since they include patients suffering from a status allergicus with hay fever, asthma, skin diseases and other symptoms; more than 50 per cent of them never were considered for surgery. In instances in which all the anatomic structures of the tonsils are hypertrophic, as is frequently the case in children, radiation therapy can be expected to be successful. If repeated infections of Waldeyer's ring with sore throats and cervical lymphadenopathy are present, radiation therapy is indicated and in most instances preferable to surgery.

Arizona Medicine, Phoenix

5:1-112 (Nov.) 1948

Newer Aspects of Sterility. M. J. Whitelaw.—p. 25.
Rheumatoid Arthritis. S. K. Conner.—p. 33
Massive Hemorrhage from Meckel's Diverticulum Occurring in Infant of Three Months B. P. Storts Jr. and J. B. Littlefield.—p. 41.
Reaction Following Use of Tr. Merthiolate. H. D. Cogswell and A. Shoun.—p. 42.
Urologic Manifestations of Endometriosis with Report of 2 Cases. W. G. Shultz and E. C. Graf.—p. 44
Fibrocystic Disease of Pancreas. H. W. Kohl.—p. 47.
"Despotism by Consent of the Governed." J. H. Howard.—p. 54.

Canadian Journal Public Health, Toronto

39:391-432 (Oct.) 1948. Partial Index

Outbreak of Paratyphoid Fever in Edmonton, Alta. G. M. Little. —p. 391.
Nutritional Aspects of Hartman Jones Memorial School Health Study: II. Report After Two Years. E. M. Shaver, E. M. Esler, W. Mosley and E. W. McHenry.—p. 395.
Standardization of Serodiagnostic Tests for Syphilis in Provincial Public Health Laboratories. R. H. Allen.—p. 401.
*Hospital Crowding and Insurance: Survey of Western Ontario. H. M. Ballantyne, J. M. Harrington and J. S. McKim.—p. 409.

Hospital Crowding and Insurance.—Ballantyne and his associates studied the relationship between hospitalization insurance and present hospital crowding. It was found that the utilization of hospital facilities by insured groups is essentially the same as the general average for the population, although the insurance subscribers are recruited from the section of the population with low morbidity rates. Between 30 and 40 per cent of patients in public general hospitals are 60 years of age or older and few of this group are covered by insurance. On the basis of representative figures on utilization of hospital facilities of the insured group as compared with the average and the difference in the age composition of the two groups, it seems justifiable to conclude that the use of insurance as a means of paying hospital bills does increase the utilization of service beyond that expected of uninsured persons. This finding should hardly be unexpected, as it is one of the purposes of the insurance principle to allow people to go to hospital who might not otherwise be able to defray the expense of this form of treatment.

Diseases of Chest, Chicago

14:795-950 (Nov.-Dec.) 1948

Facts and Fancies in Management of Seriously Ill Patient with Bronchial Asthma. M. S. Segal.—p. 795.
*Clinical Significance of Pulmonary Hemorrhage: Study of 1316 Patients with Chest Disease. O. A. Abbott.—p. 824.
*Streptomycin in Tuberculous Meningitis: Report of Case. R. B. Bauer and E. P. Sauer.—p. 843.
Combination Promin and Streptomycin Therapy for Tuberculosis. H. V. Madsen.—p. 850.
Solving Problems of Tuberculous War Veteran. A. Shamaskin.—p. 853.
Tuberculosis Case-Finding Survey in Penal and Correctional Institutions in Ohio. M. W. Garry.—p. 862.
Value of Electrocardiography. J. F. Briggs.—p. 870.
Asbestosis: VI. Analysis of Forty Necropsied Cases. K. M. Lynch and W. M. Cannon.—p. 874.
Velocity of Ether Absorption from Visceral Pleura: Pleura-to-Tongue Circulation Time. R. Charr.—p. 890.
Parasitic Infections of Lung. T. T. Mackie.—p. 894.
Utilization of Collapse Therapy: Report of Sub-Committee on Non-Surgical Collapse Therapy. H. G. Trimble.—p. 906.

Pulmonary Hemorrhage.—Abbott reports 1,316 patients, 724 men and 592 women between the ages of 7 and 87 years, with thoracic disease, 497 of whom had suffered pulmonary hemorrhage, with frank hemoptysis in 318, scant or streaking in 174 and with bleeding of undetermined degree in 5. Cough as a primary symptom occurred in 62 per cent of the cases, while hemoptysis was noted only in 21 per cent. Hemoptysis predicates serious underlying disease in 90 per cent of the patients presenting it and demands immediate and intensive investigation. Percentage incidence of bleeding in individual diseases was observed as follows: Bronchogenic carcinoma leads with 53.60 per cent, while lung abscess has 49 per cent, pulmonary infarct 44 per cent, bronchiectasis 45 per cent and tuberculosis 36.5 per cent. The relatively higher incidence in bronchogenic carcinoma, bronchiectasis and lung abscess than in pulmonary tuberculosis is stressed. The occurrence of bleeding with mediastinal lesions and tumors metastatic to the lung is emphasized. Attention is called to the importance of any variation from the usual type of hemoptysis seen in "acute pneumonia" and the need for investigation to rule out possible underlying neoplasm. No correlation can be made between the type of hemoptysis and the underlying disease, other than a tendency to more copious hemorrhage in patients with pulmonary abscess. The importance of the patient's subjective localization of the bleeding site is stressed. With the addition of staining methods for the study of tumor cells in the sputum and the intelligent use of exploratory thoracotomy, a decrease in the group of hemoptysis of undetermined causation is to be expected.

Streptomycin in Tuberculous Meningitis.—Bauer and Sauer report a man, aged 34, with tuberculosis of the right lung and proved tuberculous meningitis. Pronounced clinical improvement resulted from initial treatment with streptomycin. When the drug was discontinued for five days in the third month of treatment, the patient suffered a severe relapse. Renewal of treatment with streptomycin barely staved off a fatal termination, but after four additional months of treatment the patient progressed to a point where it was deemed feasible to discontinue the drug. He received about 160 Gm. of streptomycin in seven and one-half months by the intramuscular and intrathecal routes. His course after discontinuation of the treatment was marred by one relatively short, self-limited episode of ascites and an attack of acute appendicitis for which an appendectomy was performed. Symptomatic treatment played a large part in combating the disease. Headache and haziness of vision persisted for several months after streptomycin was discontinued but eventually disappeared completely. Ataxia and high tone deafness still persist. The patient seems to be adequately compensating for his vestibular dysfunction. All during his illness and up to the present time he has been receiving pneumothorax refills. The chest lesion shows no change and the sputum is still negative. Twenty-two months have passed since the onset of his disease, the last six of which he has spent at home with no ill effects.

Georgia Medical Association Journal, Atlanta

37:403-438 (Nov.) 1948

Modern Clues in Diagnosis and Treatment of Primary Carcinoma of Lung. W. A. Hopkins and O. A. Abbott.—p. 403.
Testicular Neoplasms. G. J. Bridges.—p. 418.
*Palliative Effect of Androgens in Management of Pelvic Malignancies. R. H. Chaney and R. B. Greenblatt.—p. 420.
Toxic Hyperplasia of Prostate. E. Floyd and J. L. Pittman.—p. 425.
Cancer News. J. C. Norris.—p. 428.
A Century of Progress. E. H. Greene.—p. 429.

Androgens in Pelvic Cancers.—Chaney and Greenblatt treated 5 women between the ages of 43 and 80 years, 3 with primary ovarian carcinoma, 1 with metastatic breast carcinoma to the ovaries and 1 with sarcoma of the uterus, by pellet implantation or intramuscular injection of 650 to 2,200 mg. of testosterone. Treatment with androgens proved of value as a palliative measure in these cases of pelvic cancers. The improvements noted were both physical and psychologic. There was temporary remission of pelvic pain, some decrease in the size of the tumor masses, improvement in well-being, increase in weight (9 to 20 pounds [4.1 to 9.1 Kg.]) and a lessened need for narcotics and sedatives. Physiologic effects, such as cessation of menstruation, hypertrichosis, deepening of the voice, increase in libido, enlargement of the clitoris and atrophic changes in the vaginal smear were usually noted. Benefit lasted from several months to almost one year in these hopeless cases. If testosterone so administered offers surcease from suffering to the patients the trial is worth the effort. The optimum dosage of the drug has not been decided on, but from these preliminary studies it is evident that greater dosage for longer periods may offer much more.

Indiana State Medical Assn. Journal, Indianapolis

41:1141-1228 (Nov.) 1948

President's Address. C. A. Nafe.—p. 1161.
*Clinical Aspects of Gastric Malignancy. G. E. Gates.—p. 1166.
Novocain Injection Treatment of Metatarsal Fractures. C. Otten and E. B. Mumford.—p. 1169.
What Is the Best Treatment for Early Syphilis? A. M. Buchholz. —p. 1170.

Gastric Cancer.—Gates believes that every patient past 35 years of age who has digestive complaints which are in the least suggestive of gastrointestinal disease must be given roentgen examination at once. The average duration of symptoms before these patients visit the doctor is six months. The average time after this first visit before a correct diagnosis is made has been found to be nearly another six months; routine roentgen studies would do away with this. However, even then, the lesions will often have spread beyond the confines of the stomach. The most common complaint is that of vague epigastric discomfort or distress, associated with, or even followed by, disturbances of appetite and slight nausea. If the lesion is at the pylorus, these symptoms may be early vomiting, and if near the cardia, hiccoughing following eating. Eating generally aggravates the distress, in contrast to the peptic ulcer syndrome, but about 30 per cent of cases show a typical ulcer reaction, with relief by eating. The unwary physician who treats this group by diet and antacids without roentgen studies will lose for these patients their chance of cure. Gastroscopic examination may be of help in doubtful cases, and now there is also cytologic examination of the gastric secretion according to the method of Papanicolaou. The cases in which cancer is apt to be present but which justify two weeks of therapeutic trial and reexamination are those with a large crater, those with irregular contour of the niche and those with a lesion on the lower half of the lesser curvature, especially if on the posterior wall. The ones warranting surgical exploration without therapeutic trial are cases with the meniscus sign, lesions of the greater curvature, subtraction defects associated with an ulcer and the presence of an achlorhydria in any location.

Journal of Aviation Medicine, St. Paul

19:305-396 (Oct.) 1948

*High Altitude Hypoxia: Observations at Autopsy in 75 Cases and Analysis of Causes of Hypoxia. R. B. Lewis and W. Haymaker. —p. 306.
Recovery of Brain from Anoxia After Administration of Analeptic Drugs: Electroencephalographic Studies on Rabbits. W. K. Noell. —p. 337.
Total Lung Volume and Maximal Breathing Capacity (MBC) in Pulmonary Emphysema After Repeated Periods of Intermittent Positive Pressure Breathing (IPPB). H. L. Motley, L. P. Lang and B. Gordon.—p. 346.
Influence of Radial Acceleration (Centrifugal Force) on Respiration in Human Beings. C. F. Lombard, H. P. Roth and D. R. Drury. —p. 355.
Turbo-Jet Engine Noise· Vibrational Frequencies and Intensities Encountered in Engine Test Cells. E. S. Mendelson, J. R. Poppen, A. T. Kornfield and H. G. Wagner.—p. 365.
Engineering Materials, Design and Technics of Investigation of Oxygen Equipment. L. W. Meakin, E. L. Hays and J. R. Poppen.—p. 375.
Aviation Noise Deafness, Hearing Standards and Recruitment. W. J. Pothoven and A. Schuringa.—p. 380.
International Quarantine and Air Travel. C. H. Morhouse.—p. 389.
*Possible Effects of Streptomycin Upon Airman's Future. P. A. Campbell.—p. 393.

High Altitude Hypoxia.—From the large collection of cases in the files of the Army Institute of Pathology in which death occurred at high altitudes, Lewis and Haymaker selected those due to hypoxia. These numbered 75. The subjects were members of heavy bomber aircrews whose ages varied from 19 to 33 years. All were apparently in excellent health before the hypoxic episodes. The information regarding the oxygen check interval and the time the men were without supplemental oxygen was obtained from the surviving crew members. Altitudes at which death occurred are known in 70 cases. Flights at altitudes between 17,000 and 30,000 feet (5,180 and 9,140 meters) were in progress when 59 of these deaths occurred and between 30,000 and 31,500 feet (9,600 meters) for the remaining 11. The average altitude was 27,000 feet (8,230 meters). The most common cause of oxygen failure was separation of the quick disconnector between the mask hose and the regulator hose. The second most common cause of oxygen deficit was freezing of moisture in the mask. In 4 instances the oxygen system was shot away by enemy fire. Defective oxygen equipment could be held responsible for the fatal hypoxia in two others. The exact duration of the hypoxia is known in only 6 cases: less than three minutes in 4 and from five to six minutes in 2. The outstanding pathologic changes were (1) engorgement of systemic veins and passive congestion, edema and hemorrhage of the internal organs, (2) vacuolar changes with or without inclusions in cells of internal organs, especially the heart and liver and (3) reactive changes in leptomeningeal histiocytes, extravasation of lymphocytes into perivascular spaces of the brain and acute ganglion cell changes in the brain.

Streptomycin and an Airman's Future.—Campbell is concerned with the vestibular disturbances resulting from the prolonged administration of streptomycin. He makes the plea that streptomycin be used in flying personnel only after due consideration has been given to the possible effect such administration may have on the airman's future. If it is possible to substitute some other drug or biologic product, it should be done. If an airman has had streptomycin he should have a careful evaluation of his vestibular system before he is allowed to resume his occupation.

Journal Pharmacology & Exper. Therap., Baltimore

94:215-338 (Nov.) 1948. Partial Index

Effect of Adrenergic Blocking Agents on Vasoconstriction Produced by Acute Oxygen Lack. D. F. Marsh and E. J. Van Liere.—p. 221.
Antibiotic Lactones and Synthetic Analogs: I. Cardiotoxic Effects on Isolated Frog Heart. N. J. Giarman.—p. 232.
Neurological Syndrome Induced by Administration of Some Chlorinated Tertiary Amines. A. Goldin, H. A. Noe, B. H. Landing and others. —p. 249.
Effect of Cardiac Glycosides on Respiration of Cardiac Muscle. M. Finkelstein and O. Bodansky.—p. 274.
Studies on Laxative Activity of Triphenylmethane Derivatives: I. Relationship Between Structure and Activity of Phenolphthalein Congeners. S. Loewe.—p. 288.
Comparison of Nine Local Anesthetics. H. S. Hamilton, B. A. Westfall and J. K. W. Ferguson.—p. 299.
Biologic Assay of Thyroid Activity. D. E. Hutcheon.—p. 308.

Journal of Venereal Disease Information, Wash., D. C.

29:359-404 (Dec.) 1948

Macroflocculation Spinal Fluid Test Employing Cardiolipin-Lecithin Antigen. A. A. Rosenberg, A. Harris and Virginia L. Harding. p. 359.
*Juvenile Delinquency and Venereal Disease Among Public School Children in Philadelphia. N. R. Ingraham Jr. and M. J. Burke. —p. 362.
Contact Reporting by Merchant Seamen. Rosalie Giacomo and J. W. Rion.—p. 371.

Juvenile Delinquency and Venereal Disease.—Ingraham and Burke state that in Philadelphia one fifth of the syphilis and gonorrhea cases detected occur in children under 20 years of age. Of the 5,839 cases discovered in public school children in Philadelphia between 1945 and 1947, ages 13 through 15 accounted for 10 per cent of the cases. In ages 16 through 19, the frequency of detection increased with age, the years 18 and 19 accounting for more than half of the total cases. Syphilis and gonorrhea are reported with almost equal frequency in school age children. Venereal disease is reported somewhat more often among young girls than among young boys. In the senior high school age group, those who remain in school have only about one half of the venereal disease rate of the age group as a whole, and there is a greater expectancy of venereal disease among children retarded in school. The rate of occurrence of venereal disease in the delinquent group (through 17 years of age) is four times greater than the reported rate in the upper three years of high school. Teaching children sex hygiene is insufficient to prevent exposure. Problems associated with venereal disease and juvenile delinquency are individual ones which would be difficult to solve by any mass approach. In addition to what may be done by parents and by the church, the trained school counselor should be made available to help with this problem.

Kansas Medical Society Journal, Topeka

49:449-500 (Nov.) 1948

The Nervous Patient. H. M. Winans.—p. 449.
Report on 116 Cases of Intervertebral Disks. C. Hombold, H. O. Anderson and H. O. Marsh.—p. 453.
*Surgical Repair of Irradiation Defects. D. W. Robinson.—p. 456.
Prevention and Treatment of Deafness in Children. E. La Monte Gann and LaVerne B. Spake.—p. 462.

Surgical Repair of Irradiation Defects.—Robinson points out that, since the beginning of treatment by roentgen-ray and radium, injuries have been known to result from such therapy. Unpreventable sequelae of heroic treatment have been justifiable; however, injuries do result from overenthusiasm, ignorance and negligence. Persons with relatively benign skin lesions have been given a few roentgens in successive treatments over many weeks or months only to have years later the inevitable skin lesions of radiodermatitis which are immeasurably worse than the original condition. The treatment of these lesions should be surgical. He presents 4 cases to illustrate the different methods of repair employed for (1) accidental irradiation burns of physicians, (2) injury from intentional massive dosage for neoplasm, (3) late change from repeated small dosage given for superficial therapy and (4) burns to patients from prolonged exposure under the fluoroscope. The surgical technics for different structures and different locations are discussed, and special warnings are emphasized concerning the frequency of malignant change and of the difficulty of controlling infections in irradiated tissues.

Michigan State Medical Society Journal, Lansing

47:1161-1304 (Nov.) 1948

President's Address. P. L. Ledwidge.—p. 1209.
Early Contributions of Physicians Toward Tuberculosis Control in Michigan. A. W. Kovacs.—p. 1212.
Aims and Obectives of Research in Tuberculosis. E. R. Long.—p. 1219.
Results of Co-Operative Study on Effects of Streptomycin. J. B. Barnwell.—p. 1220.
Use of Streptomycin in Tuberculosis. K. H. Pfuetze, B. L. Freedlander, S. S. Cohen and others.—p. 1221.
Clinical Evaluation of Functional Studies of Liver. B. C. Lockwood.—p. 1223.
*Argyrosis Following Prolonged Intranasal Medication with Argyrol. R. L. Fisher and M. Zukerman.—p. 1229.
External Duodenal Fistula. A. Large and G. L. Walker.—p. 1231.
The Rh Factor: Case History and Evaluation by General Practitioner. E. A. Bicknell.—p. 1234.
Concurrent Obstructive Jaundice and Familial Hemolytic Icterus: Report of Case Requiring Priority Surgical Treatment for Obstruction. P. A. Dressel and H. M. Bishop.—p. 1237.
Pickrell's Solution in Management of Skin Excoriations Associated with Entero-Abdominal Fistula. R. A. Stiefel and G. T. Kelleher.—p. 1240.
Foreign Agricultural Labor Program in Michigan. O. D. Stryker and C. B. Hoff.—p. 1241.
*Acne Pits: A Supposed Hopeless Disfigurement. W. G. McEvitt.—p. 1243.
Paget's Disease in Three Male Siblings: Clinical Report. L. A. Schwartz.—p. 1244.

Argyria Following Prolonged Intranasal Medication with Mild Silver Protein.—Reviewing the literature on generalized argyria, Fisher and Zukerman discuss the history, clinical data, methods of acquiring the skin condition, differential diagnosis and treatment. They also present Stillians' list of the causes of argyria in industry and in therapy. The case they report concerns a woman, aged 39, who, when first seen in April 1946, complained of a bluish discoloration of the skin which she had noticed for approximately one year. In 1923 she had "bronchial trouble" which persisted for twenty years. When the "bronchial trouble" first began she was advised to use 10 per cent mild silver protein (argyrol®) to clear the secretions from her nose and throat. She continued the use of this medicine intermittently over a fifteen year period. About eight years ago, she was advised by a second physician to continue the use of 10 per cent mild silver protein. She used it daily, morning and night, for approximately two years, requiring about an ounce of the drug every ten days to two weeks. In 1940 she began to use it at occasional intervals, and since 1943 she had ceased the use of silver salts. She exhibited slate blue appearance of the face, lips, buccal mucosa, chest wall, abdomen and back. The legs and thighs also presented a slate blue color but of less intensity. Biopsy revealed silver granules in the basket cell layer and tunica propria of the sweat glands, in the blood vessel walls and in the corium immediately beneath the epidermis. A lesser number were seen scattered through the corium. There has been an increase in argyria since silver salts have again become popular, through the fact that manufacturers claim that organic preparations of silver do not cause abnormal skin pigmentation. The authors feel that it cannot be emphasized too strongly that large doses of silver salts over a short period of time or repeated small doses for prolonged periods will cause argyria.

Disfigurement by Acne Pits.—McEvitt, not being a dermatologist, does not attempt to treat the active acne. He is concerned with the acne pits, the residuum of the disease. Only when the disease is quiescent can the residual scars be treated by the plastic surgeon. Dekeratinization with some caustic such as trichloracetic acid, although still a valuable procedure in some cases, has come into disrepute because it has been misused by charlatans. In the author's program, abrasion by means of sandpaper is the most important feature. This is carried to the point of profuse capillary bleeding, after which a grease gauze dressing is applied and left in place for seven to ten days. When the dressing is removed, the area is found to be epithelialized. Large pits and sinuses are excised and mounds pared as a preliminary procedure. The anesthesia is local. Abrasion is continued from one affected area to the next until all are treated. Second, and sometimes third, operations are required over a given area. In these multistage cases, two to three months are allowed to elapse between operations on the same area. Extremely recalcitrant scars may require even more stages, but this is unusual. No case has been found to be hopeless; some improvement has always been gained.

Minnesota Medicine, St. Paul

31:1161-1280 (Nov.) 1948

Treatment of Open Wounds of Hand. M. L. Mason.—p. 1185.
Management of Vasomotor Rhinitis. H. M. Carryer and C. F. Lake.—p. 1193.
Choline and Other Lipotropic Factors: Mechanism of Action and Significance in Chronic Liver Disease. R. A. Dolan.—p. 1198.
Unrecognized Fractures in High School Athletes. W. K. Foster and J. C. Wells.—p. 1206.
Tracheotomy: Indications and Technic. R. E. Priest.—p. 1211.
Fundamental and Clinical Aspects of Pulmonary Hypertension. C. Borden.—p. 1216.
*Disturbances of Nails Produced by Base Coats. C. W. Laymon and E. M. Rusten.—p. 1218.

Disturbances of Nails Caused by Base Coats.—Laymon and Rusten point out that physicians are observing a new disorder of the nails produced by base coats, which are applied directly to the nails beneath ordinary nail polish to prevent the latter from chipping and to reduce the frequency of application. Base coats have been on the market for several years, but in 1947 new formulas were introduced. One of the most striking changes produced by base coats is the discoloration, which may vary from magenta to different shades of brown. The nails are much drier than normal; they become brittle, and some present longitudinal striations. Another important feature is the deposition of hyperkeratotic material beneath the nail which leads to varying degrees of onycholysis. Most cases which have been observed by physicians who are not acquainted with this disorder have been diagnosed as psoriasis or onychomycosis. There have undoubtedly been many millions of applications of the newer base coats; yet the reactions have been relatively few. For this reason it seems that the material must not be a primary irritant and that persons who have this type of disturbance must be hypersensitive to some ingredient in the base coat. The positive reactions to patch tests with base coats in persons who present these changes suggest that there is an actual contact dermatitis of the nail bed. The accumulation of hyperkeratotic material beneath the nail causes onycholysis and, in same cases, complete shedding of the nail.

New England Journal of Medicine, Boston

239:729-762 (Nov. 11) 1948

*Relation of Vascular Disease to Hypertensive State. II. Adequacy of Renal Biopsy as Determined from Study of 500 Patients. B. Castleman and R. H. Smithwick.—p. 729.
Double Uterus with Horn Menstruating into the Abdomen. J. B. Vernaglia.—p. 732.
Use of Dibenamine in Pheochromocytoma: Report of Case. H. C. Spear and D. Griswold.—p. 736.
Photographic Museum. J. Fallon and J. Meyers.—p. 740.
Sarcoidosis (Concluded). D. G. Freiman.—p. 743.
Neurofibrosarcoma, with Invasion of Right Innominate Vein and Superior Vena Cava.—p. 749.
Peptic Ulcer of Esophagus; Diaphragmatic Hernia.—p. 752.

Vascular Disease and Hypertension.—In 1943 Castleman and Smithwick reported on renal biopsies from 100 hypertensive patients in the course of splanchnic resections for hypertension. The degree of the vascular disease of these patients was divided into five grades of advancing severity. Twenty-eight of the patients showed no or insignificant vascular disease and an additional 25 only mild changes. It was concluded that in many of these patients the hypertensive state antedated the renal vascular lesions, which, once established, probably aggravated the hypertension. Conclusive evidence that biopsy material provides an adequate basis for conclusions regarding the degree of arteriolar disease in hypertensive patients is presented by the authors as follows: Approximately the same percentage of cases for each biopsy grade was present in a series of 500 hypertensive patients as in the first series of 100 patients. The majority of these 500 patients were between the ages of 30 and 50, but 61 were under 30. In 100 of the 500 patients biopsies were taken from both right and left kidneys and in 95 per cent the degree of vascular disease for all practical purposes was identical on both sides. In this group of 100 double biopsies 40 patients had minimal or no arteriolar disease on each side. There was good correlation between the biopsy grades and renal function as measured by the phenolsulfonphthalein test in the entire series of 500 patients and in 20 patients when compared with renal plasma flow values. There was fairly good correlation between the biopsy grades and the retinal vessel changes when applied to the lowest and highest grades. Of the 61 patients less than 30 years of age 38 had minimal or no renal vascular disease. Two hundred and twenty-eight (45.6 per cent) of the entire series of 500 patients had minimal or no vascular narrowing. It must be concluded, as in the previous report, that hypertension frequently exists in man without evidence of renal vascular disease or with insufficient evidence to explain the elevated blood pressure. Some other functional factors that are primarily responsible for the hypertensive state and precede the appearance of renal vascular disease must exist in many cases.

239:763-800 (Nov. 18) 1948

Medical Aspects of Atomic Energy. S. Warren.—p. 763.
*Clinical Characteristics of Early Diabetes Mellitus. S. B. Beaser.—p. 765.
Fatal Toxic Nephrosis Following Administration of Mercurial Diuretics M. S. Bruno.—p. 769.
*Physical Risks of Electroconvulsive Therapy. R. Kaldeck, W. F. McLaughlin, J. Gurri and J. I. Wassersug.—p. 773.
X-Ray Diagnosis of Pulmonary Lesions. L. L. Robbins.—p. 779.
Metastatic Fibrosarcoma of Liver and Lungs.—p. 787.
Cyst of Kidney; Papillary Carcinoma of Bladder.—p. 790.

Diabetes Mellitus.—According to Beaser, true onset must be sharply separated from the clinical onset of diabetes. Only 34 per cent of a group of 182 adult patients with diabetes had classic diabetic symptoms as presenting complaints at the time of diagnosis. Diabetic symptoms of any type could be elicited from only 77 per cent of all the patients under consideration. Diabetic complications were shown to be in a different category from the symptoms and were the presenting complaints of only 19 per cent. There was a lower incidence of severe diabetic symptoms with increasing age. Severity, as measured by insulin requirement, seemed to be correlated with untreated prior glycosuria, metabolic decompensation and age, in order of decreasing importance. Single negative urinalyses are of practically no value for the exclusion of diabetes mellitus. Isolated asymptomatic glycosuria, regardless of a negative reaction to a fasting blood sugar test, should be considered diabetic unless a glucose tolerance test proves the contrary. In 56 of 100 patients of the author's group who were found to have had one or more urinalyses prior to diagnosis, glycosuria had been noted up to sixteen years prior to definite diagnosis. Glycosuria preceded symptoms by two to eleven years. Detection and treatment in the earliest, hyperglycemic or glycosuric stages of the disease is urged to prevent progression of severity of complications.

Electroconvulsive Therapy.—Kaldeck and his co-workers report 628 patients with mental diseases who received 8,082 electroshock treatments at the Boston State Hospital during the period 1942 to 1947. Thirty-one of them were aged over 60 and 5 over 70. All these patients responded well to the treatment, as did a child aged 11. One patient aged 23, with paranoid schizophrenia, died eighteen hours after the eighth treatment in a second series of electroshock treatment. Necropsy revealed acute glomerulonephritis, emphasizing that patients suffering from acute infections should be excluded from electroshock treatment and that every effort should be made to discover intercurrent infections prior to and during a course of electroshock. A thorough physical examination of every patient preceded the electroconvulsive therapy, including roentgenograms of the chest, urinalysis, blood count, blood sugar and nonprotein nitrogen determination, sputum examinations, sedimentation rate and electrocardiogram. Definite contraindications were observed to be rare. About 50 patients had signs of cardiovascular disease. In many of these patients the increased blood pressure went down when agitation subsided as a result of electroshock treatment. In a few other cases the blood pressure went up or up and down in a way that was not always consistent with the patient's emotional state. Eight patients with active and 25 with arrested pulmonary tuberculosis were treated in this series. Shock treatment of mental patients with tuberculosis carries definite risks, but in selected cases it has to be given even if the tuberculosis is active. If there is a history of recent hemorrhage or if the activity is high, shock should be given only when the pulmonary process has been controlled by collapse therapy. Eleven cases of fractures due to electroshock treatment were observed; 2 of them occurred in patients who had bone disease prior to the treatment. All fractures healed without permanent damage. A few patients with disease of the central nervous system were treated without ill effects. In another patient, who had no observed physical abnormalities prior to electroshock treatment, a transient hemiplegia developed after the treatment, most likely on the basis of vascular spasm, causing reversible structural damage to parts of the brain.

New York State Journal of Medicine, New York

48:2431-2542 (Nov. 15) 1948

Sphenopalatine Ganglion Block for Relief of Painful Vascular and Muscular Spasm with Special Reference to Lumbosacral Pain. J. L. Amster.—p. 2475.
Erythema Multiforme. M. J. Costello and J. E. Vandow.—p. 2481.
*Solar Burns of Fundi. C. A. Turtz.—p. 2489.
Newer Aspects of Clinical Electrocardiography. R. Gubner and H. E. Ungerleider.—p. 2491.
Guide to Use of Procaine Penicillin in Hospital Practice. G. H. Stollerman, E. H. Roston and Beatrice Toharsky.—p. 2501.
Elusive Mental Cases: Epileptic Personality. B. Liber.—p. 2506.

Solar Burns of the Fundi.—Turtz observed 5 cases of burns of the retina during the past four years. Three were seen within a few days after exposure to strong sunlight. The other 2 were seen four to six hours after exposure to sun lamps. All 5 complained of pain, photophobia and lacrimation, and all had conjunctival injection to a varying degree several hours after exposure. An early examination with the ophthalmoscope may reveal nothing pathologic, or a pale spot, surrounded by a brownish ring, may be seen at the fovea. Later, there may be pigment deposits and a small gray punctate spot around the fovea, and this may be replaced by a hole. The prognosis should be guarded. Even though improvement may occur, a positive scotoma with permanent impairment in vision usually results. The public should be enlightened as to the dangers of prolonged exposure to sunlight and the careless use of sunlamp treatments without adequate protection to the eyes.

Oklahoma State Medical Assn. Jour., Oklahoma City

41:407-448 (Oct.) 1948

Pain from the Psychiatrist's Point of View. J. R. Ewalt.—p. 409.
Organization of Tumor Clinics in Oklahoma. M. I. Shanholtz.—p. 415.
Warts and Their Treatment. C. L. Brundage.—p. 417.
Comments on Treatment of Ménière's Disease (Endolymphatic Hydrops). C. Gallaher.—p. 421.

Rocky Mountain Medical Journal, Denver

45:905-1072 (Nov.) 1948

Role of General Practitioner in Cancer Detection. A. C. Sudan.—p. 925.
Diagnosis and General Management of Carcinoma of Esophagus. R. H. Sweet.—p. 931.
Mediastinal Tumors. A. Ochsner, P. T. DeCamp, M. E. DeBakey and L. A. Vazquer.—p. 934.
Clinical Application of Some Aspects of Gastric Cancer Problem. M. K. Barrett.—p. 941.
Some Aspects of Gastric Cancer Problem in Relation to Diagnosis, Treatment and Prognosis. M. K. Barrett.—p. 945.
Morphology of Early Cancer. J. W. Budd.—p. 958.
Important Features in Diagnosis and Treatment of Tumors of Kidney, Kidney Pelvis and Ureter. V. J. O'Conor.—p. 960.
Brain Tumors: Diagnosis and Treatment. A. W. Adson and H. J. Svien.—p. 962.
Diagnosis of Bone Sarcoma. C. H. Hatcher.—p. 968.
Isotopes in Neoplastic Disease. J. H. Lawrence.—p. 980.
Present Status of Knowledge Regarding Malignant Disease of Prostate Gland and Tumors of Urinary Bladder. V. J. O'Conor.—p. 984.
Tumors of Spinal Cord: Symptoms, Differential Diagnosis and Treatment. A. W. Adson.—p. 989.
Treatment of Bone Sarcoma. C. H. Hatcher.—p. 999.
Bronchogenic Carcinoma. A. Ochsner, M. DeBakey, C. E. Dunlap and I. M. Richman.—p. 1009.
Cancer of Rectum. F. W. Rankin.—p. 1023.

Southern Surgeon, Atlanta, Ga.

14:735-800 (Nov.) 1948

Complications of Treatment of Fractures of Shaft of Femur. W. G. Stuck and A. A. Grebe.—p. 735.
Dislocated Disk of Lumbar Region: Statistical Analysis of Series of Cases. J. G. Lyerly and V. T. Grizzard.—p. 755.
Pilonidal Sinus Disease with Especial Reference to McCutchen Operation for Complicated Cases. G. H. Ewell.—p. 766.
The Cancer Problem. H. Acuff.—p. 774.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

21:531-582 (Nov.) 1948

Some Tracer and Therapeutic Studies with Artificial Radioactivity. J. H. Lawrence.—p. 531.
Radioactive Iodine as Diagnostic Aid for Intrathoracic Goitre. G. Ansell and J. Rothlat.—p. 552.
Relation of Radiosensitivity and Radiocurability to Histology of Tumor Tissue. A. Glücksmann.—p. 559.
Preliminary Note on Some Biologic Effects of Alpha Radiation on Frog Tadpole. K. Tansley, L. H. Gray and F. G. Spear.—p. 567.
Vertical Fracture of Patella. G. F. Dommisse and M. H. Fainsinger.—p. 571.
*Radiologic Demonstration of Ascaris Infestation. C. Strang and C. K. Warrick.—p. 575.

Roentgenologic Demonstration of Ascaris Infestation.—Strang and Warrick point out that roentgenologic methods are rarely necessary to diagnose the presence of roundworms in the bowel, and the searching for the ascaris ova in the stools is simpler and more reliable. When, however, the presence of worms has been overlooked clinically, and other diagnoses such as peptic ulcer, carcinoma or gallbladder disease are being considered, roentgenograms may show roundworms to be the cause of symptoms. Exceptionally, male worms may be present without females, so it is not justifiable to presume the absence of worms if the examination of the stools for eggs yields a negative result in a suspicious case. The roundworms show as sharply outlined, band-shaped or cylindric defects in the barium shadow of the small intestine. The barium may adhere to the surface of the worm so that its outline is visible. Sometimes a thread-like shadow indicates that barium has entered the enteric canal of the parasite. The presence of worms may lead to irritability and disordered motility of the bowel. The authors present a case which showed all these features.

British Medical Journal, London

2:847-888 (Nov. 13) 1948

Role of Special Diets in Treatment of Female Infecundity. Mary Barton and B. P. Wiesner.—p. 847.
Biologic Aspect in Treatment of the Infertile Marriage. R. C. Brown.—p. 851.
Ringworm of Scalp in Eastern Region of Scotland, 1946-7. J. Kinnear and J. Rogers.—p. 854.
Cirrhosis of Liver Presenting as Severe Anemia: Report of 2 Cases. P. N. Coleman.—p. 858.
*Treatment of Abortus Fever with Sulfonamides and Blood Transfusions. J. MacD. Holmes and R. Hughes.—p. 859.

Sulfonamide Drugs and Blood Transfusions in Undulant Fever.—A report on 4 cases of undulant fever which responded quickly to sulfonamide drugs together with blood transfusions induced Holmes and Hughes to try this treatment in 2 patients both of whom had failed to respond to previous treatment. The first patient had failed to respond to penicillin and the second one to penicillin and sulfamethazine® (2-sulfanilamido-4,6-dimethylpyrimidine) or sulfadiazine. In both of these patients there was rapid response to sulfadiazine and small blood transfusions. The second patient returned three weeks later with acute cholecystitis due to Brucella abortus; the temperature did not subside after cholecystectomy but responded to further sulfadiazine and blood transfusions. The authors feel that these results are encouraging and that this method of treatment should be given a more extended trial.

Edinburgh Medical Journal

55:513-576 (Sept.) 1948

Gastro-Jejunal Ulceration. A. G. R. Lowdon.—p. 533.
Partial Gastrectomy for Peptic Ulcer. H. W. Porter.—p. 549.
*Causalgia: Review of 22 Cases. A. J. Slessor.—p. 563.

Causalgia.—Slessor reports on the late results of sympathectomy for causalgia in a series of 28 patients out of 670 with peripheral nerve injury. Sympathectomy relieves the burning pain of causalgia; in 17 patients so treated there has been no recurrence of this pain two to three years after operation. Subsidiary pains may persist, although diminished in intensity. In some cases repeated procaine block of the appropriate sympathetic chain affords relief. Two patients so treated have remained free of pain for three years. Slight sympathetic activity in the limbs, result of faulty operative technic or of regeneration, has not been associated with recurrence of symptoms. Three untreated persons still have causalgia, which is gradually diminishing, although emotional and environmental stimuli continue to aggravate the pain.

Lancet, London

2:755-796 (Nov. 13) 1948

Period of Transmission in Certain Epidemic Diseases: Observational Method for Its Discovery. R. E. Hope Simpson.—p. 755.
*Rapid Disinfection of Clean Unwashed Skin: Further Experiments. A. D. Gardner.—p. 760.
Potency and "Toxicity" of Some Synthetic Estrogens: Clinical Assessment. P. M. F. Bishop, G. C. Kennedy and G. Wynn-Williams.—p. 764.
Activity of Some Synthetic Estrogens Determined by Experiments on Rats. G. L. M. Harmer and W. A. Broom.—p. 766.
*Rate of Flow of Venous Blood in Legs: Measured with Radioactive Sodium. H. Payling Wright, S. B. Osborn and D. G. Edmonds.—p. 767.
Further Observations on Results of Sympathectomy of Upper Limb. H. Barcroft and G. T. C. Hamilton.—p. 770.
Method of Testing Analgesics. R. Asher.—p. 771.

Disinfection of Clean Unwashed Skin.—Gardner says that rapid disinfection of unwashed skin, experimentally infected with bacteria, has been investigated in a previous inquiry, which showed that 2 per cent iodine in 70 per cent alcohol disinfected more rapidly than any of the other substances tested. The author presents further investigations on this problem which confirmed the power of 2 per cent iodine in 70 per cent alcohol to achieve virtual disinfection of flat areas of unwashed clean skin in 30 seconds or less. It is shown also, that, if a full 30 seconds is allowed, the iodine may be reduced even to 0.5 per cent. The detergents, benzalkonium chloride 30 per cent and cetrimide® (cetyltrimethyl ammonium bromide) 10 per cent, both in 70 per cent ethyl alcohol, give satisfactory disinfection in 30 to 45 seconds. Ethyl ether, various mercury preparations and some other substances have either a slower or an otherwise imperfect disinfecting power.

Flow of Venous Blood Measured with Radioactive Sodium.—According to Wright and his associates venous thrombosis has long been known to be influenced by three main factors, commonly known as Virchow's triad—changes in the constitution of the blood, damage to the blood vessels and disturbances of the circulation. Though the first two of Virchow's three factors are now well established, the participation of the third has hitherto remained largely inferential. The introduction of radioactive tracers has made possible the direct measurement of the rate of blood flow in a limb by introducing such a tracer at one point and determining its arrival at some other point with a suitably placed Geiger-Müller counter. The authors measured the rate of venous blood flow in the leg by means of radioactive sodium (Na^{24}). Studies were made on 121 normal persons most of whom were in the age group from 20 to 30 years. The flow time was measured with the subject in the supine position, care being taken to insure that the foot was at the same level as the heart and that the head was not raised. The subjects were rested for at least twenty minutes under a warm electric blanket so that their foot temperature approximated as nearly as possible that of patients in bed—i. e., 33 C. (91.4 F.). To see whether skin temperature had any pronounced effect on the foot-groin time, 10 persons were examined on two occasions, first in the way just described and again with the foot and leg immersed to the knee for twenty minutes in a water-bath at 45 to 48 C. (113 to 118.4 F.). A prominent vein on the dorsum of the foot was selected for injection with 1 cc. of solution of radioactive sodium chloride ($Na^{24}Cl$). The mean foot-groin flow time under standard conditions was 18 plus or minus 0.9 second. The extreme range of the observations was 4 to 50 seconds. The results obtained in the 10 persons examined in the standard manner and again after vasodilation by immersion in hot water showed no significant change. Significant changes had been observed by other investigators when the skin temperature rose from 20 to 33 C. (68.0 to 91.4 F.). The authors believe that this apparent difference in results might be due to the fact that their lower temperature of 33 C. was already rather "warm" and probably had evoked considerable vasodilatation and that little further change took place when the temperature was raised to 45 C. It is to be assumed that a greater vasodilatation might result when the temperature is raised from 20 to 33 C., as had been done by the other investigators. The observed range of flow times in the present series of normal persons under standard conditions of rest and temperature has shown a wider variation than was expected by comparison with the recorded figures of other workers. It is suggested the much larger range observed in this study might be due to the sensitivity of the method.

South African Medical Journal, Cape Town

22:633-660 (Oct. 23) 1948. Partial Index

*Injuries of Hand: Their Conservative Treatment. T. Schrire.—p. 634.
Electrocardiographic Case Book. III. A. Landau.—p. 645.
Radiologic Case Book. IX: Adenocarcinoma of Bronchus and Aneurysm of Aorta. M. Findlay.—p. 646.

Injuries of Hand.—After citing statistics on the tremendous industrial losses, in the form of man-work-days lost, as the result of injuries to the hand, Schrire discusses the management of these injuries. He cites the following as fundamental principles: 1. The minimum of tissue must be sacrificed; there are no spare parts in a hand. 2. Fibrous tissue strangles function and to prevent its formation infection must be fought at all stages of treatment. 3. Hand skin is the best skin for hands. 4. A loosely sutured skin has the best chance of survival. The technic described is simple and has been tested in almost 2,000 cases. Freeing of hands that are caught in machinery should be done, if possible, by reversing gears and by disassembling parts, to recover everything that has passed in without resorting to needlessly high amputations. The best anesthetic for such a procedure is thiopental sodium, because of its portability and convenience. The author discusses hemostasis, debridement, repair of nerves, joints and tendons, and amputations. After the surgical treatment penicillin should be given for forty-eight hours. The hand is kept elevated for twelve to twenty-four hours to reduce bleeding. After that it is placed in a sling. The plaster and the stitches are removed after twenty-one days. Physical therapy in the form of diathermy and active movements is carried on as long as improvement is taking place. When improvement ceases, the physical therapy is discontinued or altered.

Tubercle, London

29:221-244 (Oct.) 1948

Local Recrudescence as Endogenous Source of Phthisis. A. L. Woolf.—p. 221.
Observations on Atelectasis. A. J. Coello and M. M. Nagley.—p. 231.

29:245-268 (Nov.) 1948

The Time-Table of Tuberculosis. A. Wallgren.—p. 245.
Fluorescence Microscopy and Modified Ziehl-Neelsen Technic. G. O. A. Briggs and M. H. Jennison.—p. 252.
*Calciferol in Treatment of Tuberculous Glands. Suzette Gauvain.—p. 259.

Calciferol for Tuberculous Lymph Nodes.—Gauvain reports 23 children between the ages of 3 and 15 years and 11 adults between the ages of 16 and 44 with tuberculous cervical and inguinal lymph nodes treated with calciferol. The dosage given to most children has been 100,000 units of vitamin D daily, chiefly in dry tablet form by mouth. The adult dose is 150,000 units daily. The total dosage for children varied from 2,000,000 to 16,000,000 units of vitamin D and depended entirely on the child's reaction. The minimum adult dosage has been 7,000,000 units and the maximum 46,000,000 units. The early effect of calciferol is to cause a flare-up of activity, followed generally by rapid healing, which is usually of such a sound degree that the lymph nodes can be immediately and, so far as one can tell at this early stage, safely excised with little risk of recurrence. Of the 14 children with sinuses in this series three were slow to respond, the others all healed soundly and fairly rapidly in periods varying from one to three months. Of the 6 adults with sinuses, 3 healed within three months, 2 within six and 1 in twelve. In 6 of the 7 patients whose lymph nodes have not been excised, the lesions have remained satisfactorily healed; 1 in whom the disease has again become active has been readmitted for excision. The great advantage of calciferol appears to be that it speeds up treatment, quiescence occurs more quickly, and, therefore, surgical treatment may safely take place at an earlier stage. Surgical excision is greatly facilitated by the calciferol, as the lymph nodes are discrete and well calcified. It is as an aid rather than as a replacement of surgical treatment that calciferol appears to have its biggest part.

Acta Endocrinologica, Copenhagen

1:203-298 (No. 3) 1948. Partial Index

Carcinoma of Parathyroid with Hyperparathyroidism. B. Fretheim and *H. F. Lange.—p. 203.*
Demonstration of Substances with Estrogenic Effect in Human Sperm. O. Riisfeldt.—p. 217.
*Significance of Hormonal Disturbances for Development of Mental Diseases (A Review). A. Leth Pedersen.—p. 230.
*Urinary Excretion of 17-Ketosteroids in Women Determined by Zimmermann Reaction. M. Furuhjelm.—p. 238.
Antagonistic Action of Methylthiouracil on Inhibitory Effect of Thyroxin on Serum Lipase. G. Klein.—p. 248.

Hormonal Disturbances and Mental Disease.—Leth Pedersen discusses mental symptoms in association with endocrine lesions. He suggests that certain mental disorders may have an endocrine etiology. He is concerned particularly with women, giving an account of studies concerning patients with lesions in or about the hypothalamus and women castrated by operation. Both groups of patients show symptoms of emotional instability and increased irritability, but these are not identical in the two groups. The patients with hypothalamic lesions show, in addition to emotional instability, decided egocentricity, with a tendency to be hard to please, inert and despairing, whereas women who have undergone castration do not show these tendencies, but are restless and inclined to minimize their symptoms.

Urinary Excretion of 17-Ketosteroids in Women.—Furuhjelm found her modification of the Zimmermann reaction highly satisfactory in the determination of 17-ketosteroids in that it is simple and gives about the same results as do other methods. In studies on a large series of healthy women she has obtained insight into cyclic variations in the excretion of 17-ketosteroids. She also determined the content of 17-ketosteroids in 29 women with more or less pronounced virile traits and in 6 patients with Cushing's syndrome. Discussing observations on fertile women she says that in earlier investigations she had observed a certain tendency toward parallelism between the excretion of estrogenic substances and of 17-ketosteroids in normal women. Unlike the estrogenic excretion, the excretion of 17-ketosteroids showed no regular, pronounced peak in the middle of the cycle, nor did it reach exceptionally low levels during menstruation. The curve representing the normal women seems to show a tendency toward higher levels during the secretory phase. Among women with virilism, the highest 17-ketosteroid levels were found in those with most pronounced virile symptoms; in those with milder symptoms they were within the range of normal variations, irrespective of whether menstruation was normal. Three of the 6 patients with Cushing's syndrome showed an increased 17-ketosteroid level.

Acta Radiologica, Stockholm

30:177-266 (Sept. 30) 1948. Partial Index

Direct Demonstration of Perforated Ulcers. J. Frimann-Dahl.—p. 177.
Movement of Mitral Ring in Cases of Pathologic Changes in Left Ventricle Especially within the Posterior Papillary Muscles. H. Odqvist.—p. 182.
Congenital Valvular Formations in Urethra. S. Jorup and S. R. Kjellberg.—p. 197.
Axial Projection of Shoulder Joint. F. Knutsson.—p. 214.
Primary Malignant Tumors in Small Intestine, with Special Reference to Their Roentgen Diagnosis (Survey, and Report of 1 Case). R. Köhler.—p. 217.
*Tomography as Adjunct to Urography. P. T. Andersen.—p. 225.
*Peculiar Late Reaction in Radiologically Treated Cases of Cancer of Hypopharynx (Preliminary Observations). S. Welin.—p. 249.
*Viscous, Water-Soluble Contrast Preparations: Preliminary Report. O. Morales and H. Heiwinkel.—p. 257.

Tomography as Adjunct to Urography.—Andersen says that since July 1947 it has been the practice at the radiologic service of the Central Hospital for Frederiksborg County to use tomography of the kidney region as a supplement to the usual urography, in order to obtain more distinct nephropyelograms free from the disturbing shadows often caused by the presence of feces and gas in the intestinal tract. The author describes the technic and analyses the results obtained in the first 100 cases. He considers tomography particularly helpful in cases in which bowel preparation cannot be undertaken and the amount of gas in the intestine is abnormally increased, and in patients with prostatic hypertrophy, a condition which is often associated with flatulence.

Late Reaction After Irradiation of Hypopharynx.—At periodic follow-up examinations of patients who had been treated by irradiation for cancer of the hypopharynx, Welin observed delayed changes in 5 cases. They consisted in increased width of the prevertebral soft tissue shadow and a renewed occurrence of irregularity of the mucous membrane. These changes, although radiologically indistinguishable from a local recurrence, disappeared without further treatment. All clinical examinations with regard to the presence of a recurrence also remained negative. These changes are presumably caused by a late reaction after irradiation or they may be reaction of the irradiated tissue to an infection.

Water-Soluble Contrast Medium.—After citing some of the disadvantages in the use of iodized oils as contrast mediums, Morales and Heiwinkel say that after several years of trials they have succeeded in developing a water-soluble contrast medium of high viscosity which is free from irritating effects. The contrast substance they use is iodopyracet injection U.S.P. Sodium carboxymethylcellulose (called CMC) is a cellulose ether made by the reaction of monochloracetic acid with alkali cellulose. Its sodium salt is easily soluble in water and, at concentrations as low as 1 to 3 per cent, forms highly viscous solutions which are completely clear and colorless. They do not gelatinize, even on storing, and are completely non-irritant. To avoid pain during injection 0.25 per cent xylocaine hydrochloride® (omega-diethylamino-2,6-dimethylacetanilide hydrochloride) is added as anesthetic. The compound used by the authors contained 35 per cent of iodopyracet, 2.5 of the carboxymethylcellulose and 0.25 per cent of xylocaine.® The proportions of the constituents can be modified to suit the purpose of the examiner.

Arq. da Assist. a Psicopatas do Estado de São Paulo

12:5-292 (Jan.-Dec.) 1948. Partial Index

*Pneumoencephalography: A Contribution to Psychiatric Semiology. A. Silveira, C. Pereira da Silva and M. Robortella.—p. 5.

Pneumoencephalography in Psychiatric Diagnosis.—Silveira and collaborators performed pneumoencephalography in 50 unselected hospitalized patients with mental disease. The patients were between the ages of 15 and 70 years. Forty cases are reported in detail. The authors found that pneumoencephalography is of great topographic diagnostic value and is well tolerated. To evaluate adequately its reliability as a localizing test in psychiatry it is important that the psychiatric diagnosis be focused on the localizing meaning of the symptoms, and not on the etiologic or nosologic meanings. Encephalographic alterations ~~suggest~~ neuropsychic symptoms of the "localizing" kind. If the psychiatric pattern of a given patient has a "localizing" feature and consists of symptoms bearing on more than one cerebral region, the encephalogram may follow two different patterns: Either the changes cover the region supposed to be involved or they may also show involvement of distant areas as a secondary effect. Such behavior may be predicted if the localizing pattern is considered in the light of chronologic factors. Such alterations do not mean that all the symptoms must be labeled as originated by lesions: Many may have been evoked at a distance as a functional effect. A normal encephalogram does not contradict a localizing diagnosis by itself. The fact must be borne in mind that the symptoms refer to functions and these may be distorted by dynamic involvement.

Deutsche medizinische Wochenschrift, Stuttgart

73:461-500 (Oct. 15) 1948. Partial Index

*Experiences with Penicillin. H. Assmann and H. Moormann.—p. 461.
Problem of Endocarditis lenta; Clinical, Pathologic, Bacteriologic and Therapeutic Contributions. A. Walter, Gertrud Reimold and L. Heilmeyer.—p. 467.
Q(ueensland) Fever in Germany. E. Heni and W. D. Germer.—p. 472.
Chronic Familial Methemoglobinemia and New Modification of Methemoglobin. H. Hörlein and G. Weber.—p. 476.
Defense Against Disease and Antiallergic Principle of Spleen. E. Schliephake.—p. 478.

Experiences with Penicillin.—Assmann and Moormann treated with penicillin 500 patients with bacterial diseases, 30 with disease caused by Streptococcus, 25 by Streptococcus viridans, 56 by Staphylococcus, 32 by Pneumococcus, 5 by Meningococcus and 352 with mixed infections. Three hundred and sixteen patients recovered, 64 were improved and in 120 the treatment was a failure. Administration of the drug by intramuscular route every three hours was preferred. The single doses of the drug varied from 10,000 to 200,000 units and the total doses from 100,000 to 30,000,000 units. The favorable results obtained abroad in diseases caused by Streptococcus and Staphylococcus were confirmed. In contrast to reports published hitherto, a permanent cure of endocarditis lenta, even after treatment with a total dose of 15,000,000 to 30,000,000 units of penicillin, must be considered exceptional, only 1 in 25 patients having recovered. Combined treatment with penicillin and sulfonamide compounds is recommended for meningitis caused by Pneumococcus. Complete cure resulted in 99 of 129 patients with sepsis of various types, in postoperative and post-traumatic infections and in cases of paranephritic abscess. The favorable effect of penicillin on pleural empyema and on empyema of joints and of frontal sinuses, on tuberculous abscesses with mixed infection and occasionally on peritonitis is stressed. In 1 case of agranulocytosis penicillin by intramuscular route and in 2 grave cases of abscess of the lung penicillin spray proved effective and life saving. Penicillin should not be considered a panacea. One should be cautioned against its unlimited use because of the gradually developing resistance to the drug and for economic reasons as well.

Helvetica Medica Acta, Basel

15:323-566 (Nov.) 1948. Partial Index

Clinical Manifestations of Neurofibromatosis. E. Martin.—p. 323.
Pathogenesis and Etiology of Temporary Pulmonary Infiltrations with Blood Eosinophilia (Löffler's Syndrome). W. Löffler, A. Esselier and M. M. Macedo.—p. 371.
Diagnosis of Disturbances in Peripheral Circulation. A. Kappert, F. Rupp and P. Rubeli.—p. 404.
Cold Agglutinins and Disturbances in Peripheral Circulation. W. Baumgartner.—p. 411.
Abnormal Electrocardiograms in Athletes. A. Delachaux and J. L. Revier.—p. 424.
Diagnosis and Treatment of Threatening Cardiac Infarct. M. Holzmann.—p. 433.
Folic Acid in Treatment of Macrocytic Anemias. H. Lüdin.—p. 460.
Functional Liver Test with Alcohol. A. Bernestein and H. Staub.—p. 494.
*Addison's Disease in Patients with Diabetes Mellitus. R. Doetsch.—p. 516.
*Experimental Investigations on Treatment of Tuberculosis with Combination of Streptomycin with Para-Amino-Salicylic Acid or with Diamino-Diphenyl-Sulfone-N-Acetate. S. Moeschlin, G. Jaccard and M. Bosshard.—p. 535.

Addison's Disease in Diabetes Mellitus.—Doetsch reports a woman, aged 57, who was treated with insulin and, after Addison's disease had been diagnosed, with desoxycorticosterone. She died after an attack of purulent cholecystitis, which proved refractory to chemotherapy. Necropsy revealed sclerosis of the endocrine glands with severe atrophy of both adrenal glands and atrophy and fibrosis of the pancreas. Observations on the case presented here differ from those reported in the literature. Whereas in this case the diabetes was unfavorably influenced by Addison's disease and was improved after administration of desoxycorticosterone, cases reported earlier have shown the opposite behavior, and experimental studies on pancreatectomized animals and on animals with diabetes due to alloxan have shown a similar behavior, in that adrenalectomy improved the diabetes and administration of desoxycorticosterone intensified it. However, other authors have observed a noticeable increase in sugar tolerance after treating a number of diabetic patients with desoxycorticosterone and deduced from this a synergism of pancreas and adrenal cortex. The reported case seems to support this assumption.

Streptomycin With Para-Aminosalicylic Acid in Tuberculosis.—Moeschlin and his associates describe animal experiments which indicate that in the clinical application, likewise, a combination of streptomycin and para-aminosalicylic acid or of streptomycin and diaminodiphenylsulfone-N-acetate will give better results in the treatment of tuberculosis than the treatment with streptomycin alone. This possibility seems the more probable since it has been demonstrated by experiments in vitro that para-aminosalicylic acid has a strong bacteriostatic effect on human strains of tubercle bacilli, which have developed resistance to streptomycin. This suggests that the two substances have two different points of attack. The evaluation of the efficacy of this combined application in human subjects will require further clinical investigations.

Presse Médicale, Paris

56:825-840 (Nov. 27) 1948

*Can Primary Thrombosis Be Localized at Orifice of Vena Cava? Problem of Thrombectomy for Phlebitis: Thrombosis and Stasis. R. Leriche.—p. 825.

Note on Development of Deficiency in Weight and in Height of Children of School Age Since 1944. Douady, J. Trémolières, Matruchot and G. Pequignot.—p. 826.

Is Hysterical Anesthesia Real Anesthesia? J. Boisseau.—p. 827.

Thrombectomy for Phlebitis.—Leriche reports a case he first considered as one of phlebitis of the left external iliac vein in a man aged 46 who presented edema of the left lower limb and of the lower abdominal wall. The latter edema could be related to thrombosis of the vena cava or to stasis in the epigastric and circumflex iliac veins as a result of thrombosis of the external iliac vein. Incision of the iliac vein revealed stasis but no thrombosis, suggesting that the primary lesion was phlebitis localized at the junction of the iliac vein and the vena cava. The femoral vein appeared to be thrombosed and therefore was exposed and incised. It was filled with clots of jelly-like appearance. These clots did not adhere to the walls of the vessel. Four to 5 cm. of the vein was resected. Microscopic examination of the resected venous segment suggested that the lesions were secondary to a general disturbance of the circulation. The edema of the abdominal wall disappeared and the left leg improved, but ten days after the operation some pain occurred in the right calf and discrete pretibial edema developed. There was mild stasis of the right iliac system. In cases of this type intervention would be more effective if performed directly on the vena cava.

Ztschr. f. Hygiene & Infektionskrankh., Heidelberg

128:1-242 (July 16) 1948. Partial Index

Subcutaneous Vaccination Against Smallpox with Standardized Vaccines. M. Kaiser.—p. 1.

Report on Meat Poisoning in a Hospital. G. Petzel.—p. 9.

Experimental Meningococcic Infection of White Mice. W. Goeters. —p. 13.

Biochemistry and Pathogenicity of Hyperacid Pseudodiphtheria Bacilli (Paradiphtheria Bacilli). W. Biechteler.—p. 39.

*Intestinal Protozoa and Their Transmission in North Africa. A. Westphal.—p. 56.

*Epidemiology and Pathogenesis of Amebic Dysentery in North Africa. A. Westphal.—p. 73.

*Combat of Occupational Anthrax by Disinfection with Chloride of Lime Preparations and Formaldehyde Solutions. E. Hailer and K. Heicken. —p. 87.

*Combat of Anthrax by Solutions of Formaldehyde in Industries Processing Hair and Bristles. E. Hailer and K. Heicken.—p. 109.

Intestinal Protozoa and Their Transmission in North Africa.—Westphal says that during the campaign in North Africa the index of infestation with Endamoeba histolytica and other intestinal protozoa was determined in May 1942 by means of stained stool preparations. It was found that those men who had been in North Africa during the summer and fall of 1941 showed a much greater rate of infestation than those who had reached North Africa only in November or later. However, repeated examinations in August and September of 1942 showed that the infestation rates had been equalized. Since the increase in infestation coincided with the season when flies were present in large numbers, the fly must be regarded as the chief transmitter of the intestinal protozoa. This was proved by the fact that in Tobruk 30 per cent of the flies caught near latrines were found to contain in the intestine cysts and protozoa harbored by the human intestine. Prophylactic administration of chiniofon or rivanol® (2-ethoxy-6,9-diaminoacridine lactate) caused intestinal disturbances and did not prevent increase in the rate of infection.

Epidemiology and Pathogenesis of Amebic Dysentery.—Westphal found that of 1,069 men examined during an average stay of 10.4 months in North Africa 64 per cent had had one or several attacks of intestinal disturbances that lasted three or more days. There was no relationship between the index of infestation with Endamoeba histolytica and the incidence of these intestinal upsets. Carriers of E. histolytica did not have more intestinal disturbances than had those who were free from such infestation. That infestation with E. histolytica had no causal significance for the intestinal disturbances was corroborated experimentally by successful infestation with filtrate of feces of a patient with intestinal disturbances who was free from amebic infestation. This indicates that the primary cause of the many intestinal disturbances was bacterial. In 4,057 patients with a clinical diagnosis of dysentery, 96.3 per cent was primarily bacillary on the basis of the clinical aspects and the microscopic examination of the feces and 3.7 per cent was only amebic dysentery at the time of examination. Of the 96.3 per cent in whom the primary cause was bacillary, only 7.6 harbored E. histolytica in their intestinal tract and 1.4 per cent showed symptoms of amebic dysentery in addition to those of bacillary dysentery. The author believes that these and other observations indicate that if E. histolytica is present in the intestinal lumen, amebic dysentery follows after a primary impairment by a bacillary infection. The development of amebic dysentery after bacillary dysentery was observed in several instances in the military hospitals.

Combating Occupational Anthrax.—Hailer and Heicken say that since some patients apparently contracted anthrax indirectly from materials that had become contaminated with anthrax organisms during transport, having been shipped in the same conveyances in which previously anthrax-infected materials had been shipped, it was decided to disinfect railroad cars and other transport facilities in which imported skins and other possible sources of anthrax had been transported. Storage facilities, tanneries, wool carding establishments, horsehair spinning shops and protective clothing of workers in these shops also were to be disinfected. Three potent chloride of lime preparations and formaldehyde in aqueous and soapy solutions seemed suitable for investigation. Since treatment with disinfectants would have to be carried out frequently in the open air and during all seasons of the year, their efficacy under various temperatures had to be investigated. Comparing the sporocidal action of the three chloride preparations, which are of the same potency as regards their active chloride content, it was found that caporit® (a calcium hypochlorite preparation) was the most efficient, the action of the other two preparations being considerably less, particularly at the lower temperature of 12 and 4 C. The disinfecting potency of formaldehyde solutions was considerably less than at 12 C. and even less at 4 C. than it was at 20 C. Soapy solutions of formaldehyde were more effective at the lower temperatures than were the aqueous solutions. Furthermore, solutions that had been prepared twenty-four hours before, whether with or without soap, were more effective than fresh solutions. Pieces of pine boards that had been contaminated with anthrax spores were treated with various disinfecting solutions. The favorable results obtained with solutions of caporit® and formaldehyde indicate that they are of practical value.

Combating of Occupational Anthrax by Formaldehyde Solutions.—Hailer and Heicken describe studies with watery and soapy formaldehyde solutions varying in temperature between 30 and 80 C. They were to be used for the disinfection of hair and bristles, which become damaged when disinfected by boiling or exposure to steam under pressure. It was found that the bactericidal effect of the formaldehyde solutions is greatly enhanced by increased temperature. With the same concentration, a formaldehyde solution is one hundred times as effective at 80 C. as at 20 C. Furthermore, the addition of soap increases the sporocidal effect. When anthrax spores were exposed to formaldehyde solutions for four to six hours the concentration could be reduced about one half for each 10 C. of increase in temperature. Thus at 30 C. the best concentration was 0.25 per cent, at 40 C. 0.15 per cent, at 50 C. 0.075 per cent and at 80 C. less than 0.02 per cent. On the basis of these observations a procedure was developed for the disinfection of animal hairs and bristles which was used with success in establishments that spin horse hair or manufacture brushes.

Book Notices

Technic of Medication. By Austin Smith, M.D., C.M., M.Sc., Director of the Division of Therapy and Research; Secretary, The Council on Pharmacy and Chemistry, The American Medical Association, Chicago. Fabrikold. Price, $4. Pp. 255, with 6 illustrations. J. B. Lippincott Co., 227-231 S. 6th St., Philadelphia 5, 1948.

This book does just what its title implies. It describes in detail the methods by which medication can be given, including special indications and means of preventing untoward effects. The author has wisely refrained from making the book cumbersome by a discussion of the treatment of individual diseases. Thus there is a considerable amount of useful information not ordinarily found in textbooks of medicine or therapeutics. A short introduction in which the trends in therapeutics and the relationship of drug therapy to other forms of treatment are discussed is followed by a chapter on the prescription. Since prescriptions are now written in English, contain as a rule only one active ingredient, and the dosage is given in the metric system, it is no longer necessary to devote considerable space to Latin endings, incompatibilities or methods of calculating doses. Instead, Dr. Smith has provided a concise discussion of the choice of drugs, the legal implications and the professional relationship of the doctor who prescribes to the pharmacist who fills the prescription and to the nurse who gives the medication to the patient.

Not only are the various methods of giving drugs discussed in detail, but figures, where indicated, help to make every procedure crystal clear.

The many different dosage forms with their special indications are given in a chapter on oral administration. In the section on parenteral administration, not only are the different types of injections carefully explained, but such details as care of needles and methods of loosening the plunger of the syringe when it is stuck in the barrel are given.

Chapters are devoted to the special problems of rectal and genitourinary administration, application to the skin, the eye, nose and throat and ear.

A final section entitled "Practical Aids" gives useful information on care of equipment, removal of stains, storage of medicinals, etc.

This is just the book that the young physician needs to enable him to form good habits in his method of treatment. It is also a useful reference book for the well established physician.

Disorders of Sex and Reproduction: Ætiology, Diagnosis and Treatment. By A. P. Pillay, O.B.E., M.B.B.S. Fabrikoid. Price, 18s. Pp. 299, with 7 illustrations. H. K. Lewis & Co., Ltd., 136 Gower St., London, W.C. 1, 1948.

In an analysis of 159 cases of male sex disorders, excluding sterility, the author states in his introduction that he found 132 cases caused by psychic factors. The book itself is concerned with all aspects of sexuality from anatomy and physiology to endocrinology, psychology and clinical syndromes. All sorts of disorders and syndromes are discussed with the treatment which the practical author states he has found successful among his own patients. The book is written simply and modestly and includes a wealth of clinical material. The psychologic data are somewhat naive and superficial but suited for the general practitioner, for whom the book is intended and for whom it will be rather useful.

Clinical Urology: Essentials of Diagnosis and Treatment. By Lowrain E. McCrea, M.D., F.A.C.S., F.I.C.S., Clinical Professor of Urology, Temple University Medical School, Philadelphia. Second edition. Fabrikold. Price, $6.50. Pp. 503, with 263 illustrations. F. A. Davis Co., 1914-16 Cherry St., Philadelphia 3, 1948.

The second edition does not vary greatly from the previous edition, except that all the advances which have gained acceptance in urology have been included. New photographs have been added and many illustrations redrawn. The index has been greatly enlarged, which has added to the usefulness of the book. The chapters are well arranged and organized. The type is ideal for easy reading. Because of its conciseness and practicability, the book can be highly recommended to the general practitioner as well as to the medical student.

The Open Self. By Charles Morris. Paper. Pp. 179. Prentice-Hall. Inc., 70 Fifth Ave., New York 11, 1948.

When a distinguished philosopher and serious scholar chooses to write for the lay public on the subject of man and his knowledge of man, which is essentially psychology, we expect a great feast. Without question the author can write simply, pleasingly and understandably, but his content is disappointing. From the first chapter, entitled "Man as His Own Maker," in which the modern world crisis is again outlined and responsibility placed on us (men), to the last page, where a credo of determination includes "we will resume the responsibility for man-making," there is an exhortion for us to rise up and do better. Thus the scholar becomes just another writer for the masses, who love to read how they should decide to be better and do better, and who search for the "how" of so doing. That is why these books year in and year out sell so well, no matter what their contents, for they promise much if the reader would only do better.

The author does, however, manage to convey in readable style much of the present day concepts of psychology intermixed with his predilection for purpose. But the book is pervaded with the notion of the importance of body types in normal and disordered functioning of body and mind. Morris has swallowed the ectomorph, endomorph and mesomorph trinity hook, line and sinker from Sheldon, apparently not even aware of the far older kretchmerian hypothesis which was discarded by medicine and psychiatry as being unfruitful for psychosomatic correlations. As a result the basic concepts which could be of value to the curious reader are distorted for him. He withdraws from exhortation to do better when he is continuously told that he does what he does because of his body structure, fully apparent at birth.

Introduction to Chemistry. By Bertha S. Dodge, A.B., M.S. Fabrikold. Price, $3.50. Pp. 312, with 40 illustrations. C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, 1948.

A textbook for student nurses, this highly compressed introduction to inorganic, physical, organic, biologic and pharmaceutical chemistry severely limits itself to topics of most immediate interest to its users: units of measurement; nature of matter and fundamental chemical theory; air, its composition and behavior in the atmosphere and in the body; water, its conversion to a potable liquid and uses as a solvent and chemical properties, including its action as a hydrating and ionizing agent; simple organic compounds; foods, their composition and fate in the body, and vitamins, sulfonamide compounds and antibiotics. The author is to be commended for her careful definitions, which are both scattered through the text and collected, for reference, at the ends of chapters; liberal use of examples and illustrations; clear and thought-provoking questions, and the employment of as simple a vocabulary as is compatible with the subject. However, it seems to the reviewer that the book would have to be supplemented to a much greater extent than a normally discursive text with skilful lectures and numerous laboratory demonstrations.

Language and Language Disturbances: Aphasic Symptom Complexes and Their Significance for Medicine and Theory of Language. By Kurt Goldstein, M.D. Fabrikold. Price, $8.75. Pp. 374, with 11 illustrations. Grune & Stratton, 381 Fourth Ave., New York 16, 1948.

This book of 374 pages on language is written by a competent neurologist and neuropathologist and is the result of many years of study both in Germany and in America. The author early in his discussion speaks of the difficulties that arise in the real understanding of speech and language. From the ordinary neurologic textbook one gets the idea that the difficulties of speech (aphasia, dysarthria, etc.) are easy to understand as far as localization and mechanisms are concerned. Goldstein shows that such an idea is not true. He attempts to present those speech disturbances observed in lesions of the brain cortex in a form useful both for theoretic and practical purposes in the clinic. There are two parts: One is on the origin of aphasic symptoms and the other is on speech problems, from the clinical and pathologic standpoint. This work is of tremendous clinical value, and as far as the review goes it is one of the best. Few medical men have attempted to discuss speech and aphasic disturbances. Every neurologist and psychiatrist should have this book now. The neurosurgeons will welcome it. It is written clearly and shows for the first time the relationship between direct lesions of the involved cortex of the brain with other parts of the brain as a whole.

The Drugs You Use. By Austin Smith, M.D., Director, Division of Therapy and Research, and Secretary, Council on Pharmacy and Chemistry, American Medical Association, Chicago. Foreword by Morris Fishbein, M.D. Cloth. Price, $3. Pp. 243. Revere Publishing Co., 15 Trinity Place, New York 6, 1948.

This book offers an authoritative explanation of the many stupid or vicious practices of "the exploiters of human faith in curative remedies." Its flowing style and nontechnical descriptions make it an ideal book for the intelligent layman who may be overwhelmed by the misleading statements and half-truths present in advertisements, the popular press and the radio. It also supplies many needed facts and figures for the busy doctor who must confute exaggerated claims brought to him by his patients. There are chapters on the past, present and future status of medicine as well as on "tonics," vitamins, hormones, vasoconstrictors, local antiseptics, barbiturates, laxatives, thyroid, antiasthmatics, cosmetics, cancer cures and chemotherapy; the dangers of self diagnosis and treatment, the hazards of the common "medicine chest" with its poorly labeled bottles and old prescriptions, the fallacies in scare headlines and rumors of new discoveries and a glossary of the more common scientific terms used in labels, advertisements and the lay press. This book also offers constructive advice for the best use of the usual home medications and in case of emergencies.

Some British Pioneers of Social Medicine. By Major Greenwood, D.Sc., F.R.C.P., F.R.S. University of London. Heath Clark Lectures, 1946, Delivered at the London School of Hygiene and Tropical Medicine. Cloth. Price, $4. Pp. 118. Oxford University Press, 114 Fifth Ave., New York 11; Amen House, Warwick Sq., London, E. C. 4, 1948.

A study of British pioneers and pioneering in social medicine in England in the late eighteenth, nineteenth and early twentieth century. The material presented relates to applications of medical and scientific knowledge in prevention and relief of suffering and as a means of elevation of the standards of living through social cooperation. Names of many pioneers in early social medicine are given and work credited to them. The body of factual material, however, relates to the personalities and works of Edwin Chadwick, William Farr, John Simon, Florence Nightingale and Frances Galton. The book is historical in nature and is developed from a series of lectures given by the author. Although much of the material presented is of interest to the profession generally, it is of greater value to those interested in the development of medical statistics and historians of medical-social movements.

Frontier Doctor: The Autobiography of a Pioneer on the Frontier of Public Health. By Samuel J. Crumbine, M.D. Cloth. Price, $3. Pp. 281. Dorrance & Co., Inc., 364 Drexel Bldg., 5th and Chestnut Sts., Philadelphia 6, 1948.

Dr. Crumbine presents a variety of personal experiences, incident to the practice of medicine in Dodge City, Kan., in the 1880's and 1890's. Emphasis is also given to experiences in pioneering in public health movements in Kansas during the late 1890's and the early years of the twentieth century. An account of the author's difficulties in initiating and maintaining venereal disease control during the first world war is particularly interesting. Pioneering efforts in obtaining sanitary facilities for the transportation of seafoods from the coast areas to the Midwest are described. Interesting personal opinions on matters relating to the general practice of medicine such as evolution, hypnosis, telepathy and juvenile delinquency are included. Dr. Crumbine's narrative is informative light reading for physicians or for the laity as a record of early accomplishments in public hygiene in Kansas.

Directory of the American College of Hospital Administrators, 1948. Paper. Price, $10. Pp. 331. American College of Hospital Administrators, 22 E. Division St., Chicago 10, 1948.

The 1948 Directory is the fourth in a series of biographic catalogs issued by the American College of Hospital Administrators. It contains alphabetical lists of 325 fellows, 702 members and 330 nominees representing a total college affiliation of 1,357. The biographic information in relation to each administrator includes present position, educational qualifications, previous positions held, memberships in professional organizations and present residence. For convenience of reference there is not only a general index but also a separate alphabetical listing arranged on a regional basis. Lists of officers and regents and members of permanent committees are likewise included. For general information there is a historical sketch of the organization program and a full description of the constitution and by-laws under which the college operates. This volume is a valuable reference and source of information for all who are concerned in the administration and management of hospital services, as well as those who are seeking persons with hospital administrative experience.

Premature Infants: A Manual for Physicians. By Ethel C. Dunham, M.D. U. S. Federal Security Agency, Social Security Administration, Children's Bureau Publication No. 325. Paper. Price, $1.25. Pp. 401, with 31 illustrations. Supt. of Doc., Government Printing Office, Washington 25, D. C., 1948.

This comprehensive monograph with its complete bibliography is written as a source of information and as a guide for the general care of the premature infant.

The content is divided into two parts: Part I covers general considerations including objective measures for prematurity, incidence of premature birth, causes and prevention, deaths of premature infants in the United States and physical growth and prognosis. Part II includes clinical considerations, clinical appraisal, care in the neonatal period, nutrition, congenital malformations, birth injuries, infection, abnormal blood conditions, metabolic disturbances, nutritional disturbances (rickets and tetany) and other conditions (retrolental fibroplasia, noninfectious skin conditions and diarrhea), and miscellaneous material is discussed in the appendixes.

This book could well be added to the library of all physicians and, because of its complete bibliography, should be of special interest to those desiring to keep posted on the subject as a whole.

The Hospital Building: Comprising the 1947 A.I.A. Convention Seminar Addresses on Hospitals, and the Building Type Reference Guide No. 2. Reprinted from the Bulletin of The American Institute of Architects, May 1947 and January 1948. Compiled and edited by Walter A. Taylor, Director, Department of Education and Research, The American Institute of Architects, Washington, D.C. Paper. Price, $2. Pp. 71, with 7 illustrations. Department of Education and Research, The American Institute of Architects, the Octagon, Washington 6, D. C., 1947-1948.

In its 1947 seminar on hospitals the American Institute of Architects discussed such subjects as the past and future developments of hispitals in the United States, administrative aspects of hospital design, development of hospital plans and details of hospital construction, finishes and equipment. Because of continued interest the lectures on these subjects, together with other material and bibliographic references, have been made available in printed form. The present volume, therefore, is a convenient, compact source of reference useful not only to the architectural profession but also to other organizations and individuals interested in hospital planning and construction.

Exploración clínica del aparato o sistema digestivo. Por el Dr. R. Vicuña Herboso, profesor titular de medicina de la Universidad de Chile. Con la colaboración del Dr. Emilio Sáez S., ayudante de la cátedra. Fabrikoid. Pp. 631, with 290 illustrations. Publicado por la Universidad de Chile, Santiago de Chile, 1948.

This is an attractive, well printed and well illustrated volume, which contains much information. It is a textbook on gastroenterology. The book was written by a professor of medicine in the University of Chile. There is much in it that will be of value to the Spanish-speaking student.

Unfortunately, the several sections are of unequal value, some of them being too short to be adequate. For instance, on page 165, only a third of a page is given to flatulence, which is one of the commonest of the symptoms complained of by dyspeptics. On page 164, only a third of a page is given to regurgitation. In this article the author fails to show that he has any knowledge of the symptom. One half of page 163 is on heartburn. There again the author shows no knowledge of his subject. He confuses heartburn with a burning in the epigastrium, which is an entirely different disease.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

THE STATUS OF OSTEOPATHY AS A SPECIFIC METHOD FOR LOW BACK PAIN

To the Editor:—An old patient came in and said his low back pain was almost cured by two osteopathic treatments; I had treated him for six weeks with all kinds of treatments. Can these osteopaths and chiropractors do more for most patients with the usual low back pain than can the physician? What does the osteopath have and do for these backs? Can you help me? J. J. Blinn, M.D., Long Beach, N. Y.

[The question was referred to four physicians with extensive experience in the study of low back pain. Their replies follow.—Ed.]

ANSWER.—The fact that a physical procedure gives relief of a physical complaint does not necessarily mean that only physical factors are involved in producing the result. There seems to be good reason to believe that states of tension produce discomfort in the back. Tension aches and pains are commonly noted about the eyes and the back of the neck. Many of the physical procedures that relieve such tension pain would seem to include a strong element of suggestion. Sometimes physical procedures may relieve chronic anxiety, which in turn reduces tension and the pain associated with it. Not uncommonly, patients with states of depression who also have low back pain report complete disappearance of discomfort in the back after being subjected to electric shock therapy. Some patients who had been placed in plaster body casts without relief for the back pain have had complete relief after treatment for their psychiatric disorder by shock methods. It seems remarkable that this is the case even though shock treatment may in other instances produce compression fractures of the vertebrae and back pain. The fact that a physical treatment is striking or unusual, or is looked on disapprovingly by medical authorities, may reinforce its psychologic effects.

ANSWER.—Many of my patients with lame backs have been in the hands of osteopaths, some of them for twenty-five years, without cure.

The only thing that the osteopath does is to give manipulations of the spine which suddenly relieve muscle spasm. This does not cure the underlying cause of the lame back. Sometimes injections of procaine hydrochloride or histamine into the muscles will have a dramatic effect on muscle spasm.

I have seen patients with carcinoma of the spine who have been treated by an osteopath with disastrous effects. No worse treatment could be prescribed for this condition.

ANSWER.—Many intangibles enter into the practice of medicine. Manipulations of the back for low backache and for sciatica do occasionally help but it is not true that "the batting average" of the chiropractor and osteopath is any higher than that of the orthopedic surgeon. The orthopedic surgeon may be too conservative about manipulations, particularly in the United States. In England manipulative measures are more commonly employed by surgeons.

Those who have been in orthopedic practice for many years know that manipulations for low backache and sciatica occasionally do help. However, the doctrines taught by osteopaths and chiropractors are unsound.

Many years ago the Amercian Orthopaedic Association had one of its highly respected members at a meeting of the Society in the City of Boston, present either an osteopath or a chiropractor, I cannot remember which, to demonstrate to the members the why and how of his manipulative procedures. The members were not impressed, largely because the anatomic and physiologic knowledge of the manipulator and the interpretation of what was to be attempted were so apparently superficial.

Orthopedic surgeons have all seen suffering and sometimes actual damage done by manipulations by the irregular practitioners.

The comparatively recent outstanding surgical scientific finding that a ruptured and protruded intervertebral disk is a leading cause of low backache and sciatica has perhaps unduly thrown into the background the value of manipulative procedures. Not all backache and sciatica are due to protruded intervertebral disk. I suggest that you consult several books, including one by Mennell (Mennell, J. B.: Physical Treatment by Movement, Manipulation and Massage, ed. 5, Philadelphia, The Blakiston Company, 1945), one by Fisher (Fisher, A. G. T.: Treatment by Manipulation, a Practical Handbook for the Practitioner and Student, ed. 2, London, H. K. Lewis & Co., 1928) and one by Krusen (Krusen, F. H.: Physical Medicine; the Employment of Physical Agents for Diagnosis and Therapy, Philadelphia, W. B. Saunders Company, 1941).

ANSWER.—Careless manipulation can result in death or lasting harm to the patient. An accurate diagnosis is the first requirement before considering manipulation; here the osteopaths and chiropractors frequently get into trouble. Tuberculosis, cancer, fracture, marked osteoporosis or an acute infectious process must be ruled out. This requires adequate roentgenograms and a careful physical examination. Manipulation is often of great value when used together with other orthodox methods of treatment, such as active exercises, physical therapy, traction or immobilization by cast or brace.

The most dramatic results are obtained in those patients who suddenly get a "catch" low in the back, with acute muscle spasm and inability to straighten up. The osteopath calls this a dislocation of the spine. Possibly an incomplete subluxation of the facets may occasionally occur, with the subsequent acute muscle spasm preventing return to normal position. Frequently in this type of patient relief is obtained from a general anesthetic with a minimum of manipulation. The patient with chronic fibrositis may also receive relief in conjunction with proper follow-up care. Many patients do not require general anesthetics for a satisfactory manipulation, though a patient with chronic disability who is apprehensive will do so.

The purpose of the manipulation is to restore length and tone to contracted muscles and ligaments and possibly to break up adhesions in and around the facets. Patients with herniated disk syndromes have frequently been temporarily or permanently relieved by proper manipulation.

Review the roentgenograms before examining a patient. Use a series of manipulations as part of the examination. The manipulation is carried out on a low, firm examining table. The flexed knee is first forced up toward the chest, each knee separately and then together. Then with one thigh hanging off the side of the table locking that side of the pelvis, forcibly flex the opposite hip with the flexed knee, producing torsion on the sacroiliac joints. Patrick's test is forcibly carried out bilaterally. Straight leg raising is carried out with only moderate force. With the patient in the prone position the back is gently hyperextended at several levels by elevation of the thighs with the other hand placed on the patient's back. Lateral manipulation is also possible in this position. With the patient on his side, the upper hip and the knee are flexed, and with one hand on the patient's ilium and the other hand on his shoulder, rotation strains are thrown on the sacroiliac joints and lower part of the spine by force in opposite directions with the hands. A final maneuver is a kick and stretch manipulation of each lower extremity. This is possible only when the patient is awake. The patient flexes the hip and knee with the surgeon grasping the ankle. The patient strongly kicks the leg as the surgeon gives a quick jerk on the ankle. This last manipulation is of particular value when partial subluxation of a joint or a disk syndrome is suspected.

For an excellent discussion of manipulation of the back it is advised that "Backache and Sciatic Neuritis" by Philip Lewin and published by Lea and Febiger be consulted.

FLUORIDES

To the Editor:—Is it safe to dispense a fluoride preparation (4 grains of sodium fluoride to 128 ounces [3.8 liters] of isotonic sodium chloride solution) for daily teeth cleansing for children? Is such a solution poisonous if taken internally? This preparation is being prescribed by some dentists. Louis M. Harley, M.D., Detroit.

ANSWER.—Topical application of fluorides for the prevention of dental caries still has many unknown factors. Available evidence suggests multiple applications of a 2 per cent aqueous solution of sodium fluoride preceded by oral prophylaxis (*J. Am. Dent. A.*, **34**:700 [May 15] 1947).

Sodium fluoride is a deadly poison, and toxic symptoms have been induced by doses as small as 60 mg. The average fatal dose for mammals is considered to be about 0.5 Gm. per kilogram orally. Possibility of accidental poisoning is always present when such potentially toxic substances are present in the home. Additionally, their presence predisposes to abuse through overuse. Administration of fluorides in any form should be under the direct supervision of a dentist.

DIAGNOSIS OF SYPHILIS

To the Editor:—A married woman, aged 34, had a positive Wassermann reaction on Oct. 6, 1947. One year prior to this she had a negative blood reaction during examination for a food handler's permit. No known primary or secondary manifestations occurred. The Army "twenty-six week" rapid treatment with oxophenarsine hydrochloride and bismuth subsalycilate was given. During the course of treatment a blood test in January 1948 elicited a negative reaction. In May 1948, at the completion of the twenty-six week treatment, the blood reaction was also negative. A positive report was returned on Sept. 20, 1948, during follow-up. After this 600,000 units of procaine penicillin in sesame oil was given daily for ten days. Two weeks later the blood reaction was again positive. Has this patient had adequate treatment? May a second infection be present? What further treatment is needed?

M.D., North Carolina.

Answer.—This inquiry raises a whole list of problems in the diagnosis and treatment of syphilis which cannot be covered in a brief answer. Important information is omitted from the inquiry. Does the patient have any physical evidence of syphilis, congenital or acquired? Does her husband have syphilis? Has she any children, and if so, is there any evidence of syphilis in any of them? Was the original positive "Wassermann" rechecked in order to rule out technical error before treatment was instituted? Was the original test quantitatively titered? Since the patient had been known to be seronegative one year before the appearance of the first positive serologic test for syphilis, had she, during the year preceding the discovery of this test, been subjected to any of the extraneous influences known to produce biologic false positive serologic reactions? Has her spinal fluid been examined and, if so, with what result? Were the serologic tests performed after the twenty-six week Army treatment done on a quantitative or a qualitative basis; and what is the quantitative titer now, before, and after the injections of procaine penicillin?

On the basis of the information presented, it is far from certain that the patient has syphilis, either a first or a second infection. In these circumstances it is impossible to offer any opinion as to whether she requires further treatment.

TECHNIC OF FLUORINE APPLICATION

To the Editor:—What is the exact technic of painting a child's teeth with sodium fluoride solution to prevent decay?

Frank W. Dimmitt, M.D., Providence, R. I.

Answer.—The coronal surfaces of the teeth are cleaned in the customary manner, i. e., with a motor-driven rubber cup and fine pumice. Only the first topical application in the series of four weekly applications is preceded by dental prophylaxis.

The cleaned teeth are then blocked off with cotton rolls, generally an upper and lower quadrant being treated at one time. The cotton rolls in the lower part of the mouth are held in position by cotton roll holders. In both the upper and lower arch care should be taken to see that the cotton rolls are clear of the teeth so as to avoid absorption by the cotton rolls of the applied solution.

After isolation with cotton rolls, the teeth are dried with compressed air, particular attention being given to drying the interproximal tooth surfaces. A 2 per cent solution of sodium fluoride (chemically pure sodium fluoride in distilled water) is then applied to the dried enamel surfaces of the teeth by means of either a cotton applicator or a light spray. All surfaces, including the interproximal areas, should be wetted and the applied solution allowed to dry in air for three minutes. The second, third and fourth applications are made at weekly intervals. It has been suggested that the series of four applications be given at 3, 7, 10 and 13 years of age so as to protect the deciduous teeth and the various permanent teeth which erupt between the sixth and twelfth years of life.

IVY POISON TRANSMISSION

To the Editor:—As the years have passed, each generation has had its own ideas regarding poison ivy. One group insists that close proximity to the plant is sufficient to cause a serious involvement of the skin. Other groups believe that actual contact is necessary before skin lesions will occur. What are the pertinent facts in this matter?

M.D., Indiana.

Answer.—Poison ivy dermatitis results when the irritating substance from the plant comes in contact with a susceptible skin. The contact, however, does not of necessity have to be a direct or obvious one. Shelmire has often noted ivy dermatitis which has resulted from contact with contaminated intermediary objects such as luggage, hunting or fishing equipment, shoes and golf clubs and even from the fur of dogs that had run through an ivy patch. Andrews stated that "some persons are so susceptible that direct contact is not necessary, the poison being apparently carried a short distance by the wind."

DERMATITIS FROM SHIRT FINISH

To the Editor:—A white man aged 40 suddenly had urticarial eruptions on the trunk which gradually spread to the face. This occurred every time that the patient wore a brand new white dress shirt. After the shirt had been washed five to ten times at the laundry he would be able to wear it without any eruption. Is there any substance in brand new white shirts that can be responsible for such a skin eruption?

M.D., New York.

Answer.—Most new fabrics from which wearing apparel is made have a finish on them to give the fabric certain desired properties such as better appearance, better wearing qualities and prevention of runs. In your patient's white shirt, the finish was probably one that gave the fabric a better appearance. Such finishes usually contain a synthetic resin, and sensitivity to synthetic resins is not uncommon. An outbreak of dermatitis from wearing apparel, reported in 1940, was found to be due to a synthetic resin finish. Such finishes require many launderings for complete removal. The colored shirts worn by your patient may have had another type of finish. The dress shirt material may require a stiffening finish which is not required by the colored shirts. Directions for determining the exact cause of dermatitis from wearing apparel are to be found in "Occupational Diseases of the Skin," by Schwartz and Tulipan, page 304. (Schwartz, L.; Tulipan, L., and Peck, S. M.: Occupational Diseases of the Skin, ed. 2, Philadelphia, Lea & Febiger, 1947, p. 304.)

ACTIVITY OF VIRUS IN SERUM HEPATITIS

To the Editor:—During service I incurred a mild form of homologous serum jaundice following administration of yellow fever vaccine. Jaundice was not sufficient to require hospitalization. Since then I have not had symptoms referable to the jaundice. Is the virus still active at this time? What laboratory tests can be used in this investigation?

M.D., Louisiana.

Answer.—Clinical or practical laboratory tests for the detection of the virus of homologus serum jaundice are not known. Various hepatic function tests have been used serially in some groups of patients who have had an abnormal convalescence from infectious hepatitis or serum hepatitis (homologus serum jaundice). Such tests include: the determination of sulfobromophthalein sodium retention, the plasma bilirubin level and the thymol turbidity reaction of the serum. Unless such tests reveal persistent and appreciable abnormalities it would be difficult to interpret them in an asymptomatic patient.

REFLEX SNEEZING FROM LIGHT

To the Editor:—Can looking at bright lights cause sneezing in some persons? What is the mechanism of action and methods of treatment? Are such persons prone to have asthma, or other allergic manifestations?

T. E. Finegan, M.D., Elyria, Ohio.

Answer.—Sneezing on looking at bright light is probably produced by a reflex through the autonomic nervous system, much like coughing elicited by irritating the external auditory canal. This is to some extent a normal phenomenon. Those with nasal irritation or an acute infectious rhinitis are more likely to be affected by light stimulation or by other nonspecific stimuli such as dust and chemical fumes. If a person is affected by light in the manner described there is a fair possibility that he already has a nasal allergy. Anyone who has allergic rhinitis is likely to have asthma later.

DFP IN GLAUCOMA

To the Editor:—In The Journal, Oct. 23, 1948, page 625, response to a question regarding the efficacy of DFP in glaucoma contained this statement, "In general, when other miotics, as pilocarpine or physostigmine, fail to control the tension, DFP has little chance of success."

I should like to summarize for you data that have been obtained by various ophthalmologists in this country who have attempted to evaluate the usefulness of DFP in glaucoma. First of all, to the best of my knowledge, DFP is effective in lowering the intraocular tension in practically all cases in which other miotics are effective. In addition to that, it has been shown repeatedly that intraocular tension may be lowered by DFP when all other miotics or combinations of miotics have failed. In McDonald's series, 57.4 per cent of glaucomatic eyes resistant to other miotics were controlled by DFP; Dunphy reported 35 per cent; von Sallmann 63.1 per cent; Marr 15.6 per cent, and Leopold and McDonald 25 per cent response in eyes resistant to other miotic therapy. The statement, therefore, that DFP has little chance of success when other miotics fail to control the tension seems to me to be unwarranted, and correction should be made in the columns of your journal. I know of only one large ophthalmology clinic in this country that shares the opinion expressed in your answer. A valuable drug should not be dismissed on the basis of this one opinion.

J. H. Comroe Jr., M.D., Philadelphia.

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SURGICAL TREATMENT OF ENDOMETRIOSIS

With Special Reference to Conservative Surgery in Young Women

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Philadelphia

In the past twenty-five years abundant information regarding the behavior of endometriosis has been acquired. Enlightenment is so far from complete that the variegated pattern of this disease leads to a "wide open" field in fundamental research.

This common gynecologic lesion has undeniably been dealt with satisfactorily in many instances, long before the entity endometriosis was known to exist. The empiric treatment of dysmenorrhea has in the past and is now relieving many patients suffering from endometriosis. Nature (since the beginning of time) has employed an efficient prophylactic and curative measure for endometriosis, i. e., pregnancy. It is noteworthy that the frequency with which the diagnosis of endometriosis is made parallels the increased use of contraception, the emancipation or rise of womankind to careers and/or late marriage with late childbearing.

As observations on the behavior of endometriosis increase, the indications for surgical treatment decline. Medical and hormonal therapy have played an increasingly important role in the management of cases. Pregnancy, the best therapeutic measure, comes under the heading of hormonal therapy, with respect to endometriosis. There are limitations as well as failures in nonoperative treatment of heteroplastic lesions. Indeed, there are endometrial lesions of such magnitude that surgical treatment is almost an immediate necessity when the lesions are discovered.

NECESSITY FOR SURGICAL INTERVENTION

Endometriosis is a disease of young women, producing symptoms chiefly in the reproductive years. This troublesome fact is reason enough to make a conscientious physician hesitate before operating. I do not regard the diagnosis of endometriosis alone as an indication for surgical intervention.

The management of a woman with endometriosis requires the patience of Job. It requires constant observation, so that over a period of time one is apt to believe that one is seeing a large volume of cases. To determine accurately the incidence of endometriosis in my practice, 1,000 unselected consecutive cases were taken from the files for analysis.

The diagnosis of endometriosis was made fifty-eight times (table 1), for an incidence of 5.8 per cent. Table 2 summarizes the management. One half of the patients were successfully cared for without recourse to operation. Forty-one per cent were operated on for uncontrolled symptoms of endometriosis, while 8.6 per cent presented the incidental observation of endometriosis with other far more important pathologic conditions.

I have found the following conditions to be indications for surgical treatment after failures of medical therapy (they are listed in order of frequency):

1. Dysmenorrhea. This symptom may be the accentuation of primary dysmenorrhea or an intensification of the acquired type.
2. Pain in the lower quadrant of the abdomen. This pain is most frequently in the left lower quadrant. Discomfort is usually crampy in nature, although I have observed it to be constant in some cases. Menstruation accentuates the pain.
3. Dyspareunia. It is easily understood how endometrial fixation of the uterine body in the cul-de-sac or involved uterosacral ligaments by the same process, not to mention adnexal endometriosis, will cause dyspareunia.
4. Menorrhagia. An abnormal loss of blood with periods is one of the less common symptoms. It should be remembered in discussion of endometriosis, as many other gynecologic lesions, that menorrhagia may be due to a coexisting pathologic condition. As an example, I have encountered advanced endometriosis with pelvic inflammatory disease and carcinoma of the corpus and cervix uteri as well as malignant conditions of the ovary.
5. Rectal pain and tenesmus. This is a selective complaint. If the rectovaginal septum and/or cul-de-sac is involved, this symptom is easily understood.
6. Metrorrhagia. Generally, causative factors other than endometriosis should be looked for when this complaint is noted. I have observed patients with endometriosis of the cervix, vagina and episiotomy scars to have this symptom following trauma.

It must be remembered that any combination of these symptoms may be present. Finally, I wish to emphasize that these women as a rule are not subjected to surgical treatment without a trial on medical therapy.

SURGICAL TREATMENT OF ENDOMETRIOSIS

Each case of endometriosis must be carefully individualized. The important factors that will aid a surgeon in the selection of a given procedure are: (1) age of patient, (2) marital status, (3) number of children, (4) infertility, (5) acceptance of a conservative policy as regards the operation and what it might mean in the event of a failure to relieve all the symptoms and (6) emotional balance of the patient.

With respect to the first point, the treatment of a young patient between the ages of 16 and 40 years, single or married and without children is briefly

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From the Department of Obstetrics and Gynecology, Temple University Hospital, Philadelphia.

Read in a panel discussion on endometriosis before the Section on Obstetrics and Gynecology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

presented. The extent of the endometriosis responsible for symptoms is exceedingly variable. She may have nothing more than one involved uterosacral ligament with an adherent retroverted uterus or a uterus in normal position with bilateral 8 to 10 cm. ovarian endometrial cysts along with a liberal cul-de-sac involvement. Regardless of the extent, conservative surgical treatment should be carried out if possible. Many of the implants may be safely removed, the ovaries bisected and resected, the uterus suspended if necessary and a presacral neurectomy carefully done. In addition, the tubes should be carefully inspected to confirm patency. Sulfanilamide crystals (5 Gm.) should be poured around the adnexa to lessen adhesions. It is obvious from this description that an attempt is made to preserve the childbearing function of the patient.

The patients with severe disease, particularly with ovarian endometriosis, have faulty ovulatory function before operation, and I have noted ovulation in from three to six months following operation. In 43 cases of advanced ovarian endometriosis in which I have carried out the aforementioned surgical procedures, there were 37 per cent conceptions. I have classed results in 4.5 per cent of the cases as failures. Although in 2 cases there was no pain, the ovarian heteroplastic spread was increasingly evident after the sixth postoperative month. Roentgen rays, in low dosage, were used to bring the lesion under control. The conservative steps described have been varied only with extensive sigmoid involvement. Minimal bowel implants were removed if possible. On the other hand, I have left superficial areas of endometriosis of the sigmoid measuring as much as 2 by 4 cm., removing only the complete uterus and leaving resected ovaries in situ. Hysterectomy, like pregnancy, interrupts menstrual function, and this alone seems to be beneficial.

Any patient, regardless of age, with symptoms of partial bowel obstruction from endometriosis is operated on as soon as it is possible to do so. At laparotomy, the sigmoid involvement may demonstrate an infiltrating lesion that leaves no doubt as to the cause of symptoms. In such rare instances, it is necessary to do a hysterectomy and bilateral removal of the adnexa. Only in the cases of advanced bowel lesions, or possibly in women over 45, do I feel that one should completely ablate the pelvis. On the other hand, with endometriosis in patients over 40 years of age, I have found that a panhysterectomy alone will control most lesions and relieve symptoms. It is not necessary to castrate women indiscriminately because of endometriosis.

Table 1.—*Occurrence of Endometriosis in a Gynecologic-Obstetric Private Practice (Consecutive, Unselected)*

Number of Cases Studied	Number of Cases with Diagnosis of Endometriosis	Percentage of Cases in Practice
1,000	58	5.8

In the surgical treatment of endometriosis when I have encountered cul-de-sac involvement to any degree in the past, I have been reluctant to do a complete hysterectomy. However, subtotal hysterectomy has little appeal because of the troublesome pathologic conditions which may arise in the retained cervix.

For the two years prior to reporting I have done complete hysterectomies with cul-de-sac and uterosacral endometriosis and have encountered no serious difficulties. Reasonable care must be exercised, but the operation is not formidable. Another error that has been perpetuated concerns drainage in cases of endometriosis. Drains have done more harm than good, by adding the hazard of secondary infection. There is no necessity for this procedure, and I strongly advise its abandonment.

Table 2.—*Management of Endometriosis*

Management	No. of Cases	Percentage of Cases
Nonoperative therapy	29	50.0
Surgical treatment for endometriosis	24	41.4
Surgical treatment for other disease (endometriosis also found)	5	8.6
Total	58	100.0

CONCLUSIONS

1. Medical and endocrine therapy is of great value in the management of endometriosis.
2. Judiciously spaced pregnancies produce a most helpful response in endometriosis.
3. There is no reason for wholesale castration in endometriosis.
4. Surgical procedures must be carefully individualized.
5. The conservative surgical approach has been found to be worth while and is eminently satisfactory for endometriosis.

MANAGEMENT OF COMPLICATIONS OF ENDOMETRIOSIS

CLYDE L. RANDALL, M.D.
Buffalo

Women experience varied discomforts due to endometriosis. It must first be decided which to consider complications of the disease. The site of an endometrioma does not of itself assure development of difficulties, and extragenital or extrapelvic foci may not cause eventual distress. Often there seems little correlation between the severity of symptoms and the extent of the disease. Certainly, for the purposes of this discussion, unexpected or undesirable effects of endocrine, radiation or surgical treatment should not be ascribed to endometriosis. I would consider as complications disturbances resulting whenever disseminated superficial lesions or a single penetrating nodule, symptomatically or mechanically, interferes with the function of the reproductive, urinary or digestive tracts.

Such complications give rise to nonspecific symptoms, all of which are commonly due to lesions other than endometriosis. The mere fact that a patient's complaints may be due to this disease tends to keep attention focused on this possibility.

DISTURBANCES OF MENSTRUATION

Among the possible complications of endometriosis, the reproductive system might be expected to be most frequently disturbed. Yet menstrual irregularities are not often due to this disease. Irregular intervals between periods or prolonged periods of flow are

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usually due to systemic factors or pelvic pathologic conditions other than endometriosis. It seems evident that, while endometriosis may complicate the menstrual function, it does not do so in a specific or pathognomonic manner.

Menstrual pain has long been regarded as a sign of this disease. It has even been suggested that we are overlooking early cases of endometriosis among patients treated for primary or functional dysmenorrhea. However, like pelvic inflammation and neoplasm, endometriosis frequently gives rise to symptoms that may be aggravated at the time of a period, but tend to recur throughout the month. Many writers have emphasized that the points in the patient's history suggesting endometriosis must be elicited by the examiner's questioning. Yet, even with apparently "endometriosis-conscious" history taking, dysmenorrhea has been reported as a complaint by not more than 40 per cent of women found to have this disease.

In an attempt to evaluate menstrual pain as a sign of endometriosis, associates and I reviewed 2,000 consecutive menstrual histories given by women under 40 years of age, who up to the time of writing had shown no evidence of endometriosis. Eleven per cent were examined because of a primary complaint of dysmenorrhea, but, when questioned, an additional 33 per cent stated that they had experienced severe (18 per cent) or mild (15 per cent) cramping at the time of their periods. Frequent as menstrual pain may be, nevertheless, when the patient describes a classic and progressive "acquired" type of pain, a history of dysmenorrhea warrants a suspicion of endometriosis.

DISTURBANCES OF REPRODUCTION

Dyspareunia often complicates genital tract function, and this complaint, like persistent backache, should be regarded as so inevitable a result of endometriosis that relief should be expected only with eradication of the responsible implants.

Infertility appears to be a complication; at least it is frequently associated with endometriosis. Perhaps we have too readily concluded that the disease interferes with the reproductive function, but evidence suggests that the development of endometriosis is favored by infertility. Endometriosis does not regularly interfere with ovulation, and it does not close the genital tract and actually prohibit conception. Moreover, existing foci of endometriosis undergo noticeable resolution during a pregnancy.

DISTURBANCES OF DIGESTIVE TRACT

Digestive disturbances are rarely due to endometriosis. However, the rectosigmoid and occasionally the appendix or terminal ileum may become involved to a degree producing symptoms. Particularly in the rectosigmoid, endometriosis may produce symptoms and observations simulating diverticulitis or cancer of the bowel.

DISTURBANCES OF URINARY TRACT

Urinary distress is not often due to endometriosis, but bladder function and the caliber of the lower ureter may be effected by the disease. Vesicular symptoms are most frequently due to implants, giving rise to peritoneal adhesions and pain when the bladder is full, particularly discomfort as the full bladder is being emptied. This type of involvement usually accompanies ovarian endometriosis and is evident when the peritoneum is opened.

NONOPERATIVE TREATMENT

Roentgen Irradiation.—The effectiveness of roentgen irradiation as a means of controlling endometriosis has been evaluated by Jenkinson and Brown [1] and more recently by Schmitz and Towne.[2] In a limited experience, we have found subcastration dosage of little benefit, but there is no question as to the effectiveness of irradiation when the patient can be treated as to assure castration.

Endocrine Therapy.—At the present time it is difficult to evaluate endocrine therapy, which may yet provide a nonoperative means of affording relief from the discomforts of endometriosis. The use of androgens has been suggested by Hirst [3] and Miller.[4] Estrogen therapy seemed occasionally helpful to Schmitz and Towne,[2] but its effectiveness in larger dosage is being emphasized by Karnaky.[5] Since Bushnell [6] has recently recommended that patients with endometriosis be advised never to take estrogens, there is obvious need for further careful study of this whole matter. Our results with androgens have been altogether disappointing. Our experience with estrogen therapy has been too limited to justify an impression as to its possible effectiveness.

SURGICAL CONSIDERATIONS

Management of Dysmenorrhea.—Treatment of the patient when dysmenorrhea is due to endometriosis requires a decision as the type of lesion accounting for such pain. Does dysmenorrhea occur when only external endometriosis is present—when there is no adenomyosis? Does the occurrence of typical acquired menstrual pain always mean involvement within the uterine wall? At operation, when ovaries adherent and distorted by endometrial cysts seem to account for dysmenorrhea, can the possibility of uterine lesions be disregarded, particularly if the uterus does not grossly suggest adenomyosis? To date, among 298 patients with grossly evident chocolate cysts, we have found that 39.6 per cent complained only of dysmenorrhea, without intermenstrual or menstrual aggravated pain. However, among 438 cases in which a removed uterus revealed adenomyosis and there had been no appreciable external endometriosis at operation, a significantly lower incidence, i. e., 22.6 per cent of the patients had complained only of dysmenorrhea. All would agree that menstrual pain may be due to adenomyosis grossly not evident at operation. If the uterus and any ovarian tissue are to be preserved, a presacral nerve resection may prove necessary to relieve the patient's complaints. However, neither dysmenorrhea nor other pelvic pain associated with ovarian or parametrial external endometriosis will be relieved by presacral neurectomy. Thorough exploration and adequate resection of involved and suspected tissues are equally important if the patient is to be relieved.

Hysterectomy.—Cashman [7] has reported removal of the uterus with preservation of uninvolved ovarian tissue as an effective treatment for endometriosis. He

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1. Jenkinson, E. L., and Brown, W. H.: Endometriosis: Study of One Hundred and Seventeen Cases with Special Reference to Constricting Lesions of Rectum and Sigmoid Colon, J. A. M. A. **122**: 349 (June 5) 1943.
2. Schmitz, H. E., and Towne, J. E.: Am. J. Obst. & Gynec. **55**: 583, 1948.
3. Hirst, J. C.: Am. J. Obst. & Gynec. **46**: 97, 1943; **53**: 483, 1947.
4. Miller, J. R.: Preoperative Use of Testosterone Propionate as Aid to Surgical Treatment of Endometriosis, J. A. M. A. **125**: 207 (May 20) 1944.
5. Karnaky, K. J.: Personal communication to the author.
6. Bushnell, L. F.: Am. J. Obst. & Gynec. **55**: 915, 1948.
7. Cashman, B. Z.: Am. J. Obst. & Gynec. **49**: 484, 1945.

stated there were no reoperations among his patients treated by hysterectomy alone, i. e., without effort to remove evident foci of external endometriosis; hence there has been no opportunity to observe what happened to the endometrial implants that were not disturbed. We have had no experience with comparable cases and cannot comment on Cashman's interesting experience.

Castration or Resection.—The general surgeon's treatment of endometriosis has long been excision of the chocolate cysts that so often indicate the diagnosis. The castration thereby produced has, at least, avoided further progress of the disease. Obstetricians doing gynecologic surgery have emphasized resection of ovaries rather than oophorectomy. Pregnancies have been realized in at least one third of such conservatively treated patients. However, we must also admit that the same carefully preserved ovarian function allows persistence or recurrence of endometriosis to a degree requiring reoperation in at least 30 per cent of cases.

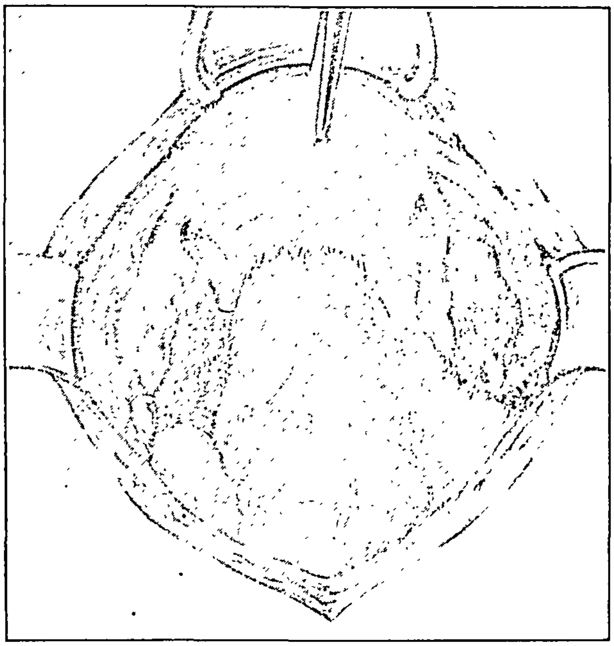

Fig. 1.—The adnexa can be freed from beneath the broad ligament, after which the underlying parietal peritoneum can be opened.

Conservative surgical treatment in younger women may be followed by later development of more extensive endometriosis in the cul-de-sac, with rectal symptoms from fixation of the rectosigmoid against the posterior uterus and vagina, persistent backache from thickened uterosacral ligaments and even ureteral narrowing from the parametrial thickening. A single endometrioma, or endometriosis retroperitoneal and involving the rectosigmoid, requires a choice between removal of the involved tissues by resection or control of the disease by castration. Either by roentgen irradiation or oophorectomy, castration accomplishes symptomatic relief easily. Resecting posterior vaginal wall, the rectovaginal septum and perhaps a portion of rectosigmoid is a comparatively formidable procedure. However, before deciding to handle suspected endometriosis in the bowel by castration, one must make certain that the lesion is not carcinoma. Moreover, when involvement of the bowel has progressed to a degree producing obstructive symptoms, McGuff and his co-workers[8] have emphasized the excellent results that can be expected without resection.

We would emphasize the variable course of endometriosis in different patients. After a conservative operation, we cannot predict which one may show recurrence or extension requiring reoperation within two or three years and which one will not experience further discomfort for ten years. The age factor is important. Many surgeons, conservative with a 23 year old girl, would tend to castrate a 43 year old woman with equally extensive disease. All surgeons respect the problem of the 30 to 40 year age group, particularly when the patient's distress is due to recurrence a few years after a conservative operation for endometriosis. Here, indeed, is the necessity to castrate or, if all ovarian tissue is not to be removed, to recognize and adequately excise the involved areas. Again to resect ovarian tissue and not free the adherent rectosigmoid from the posterior part of the vagina and cer-

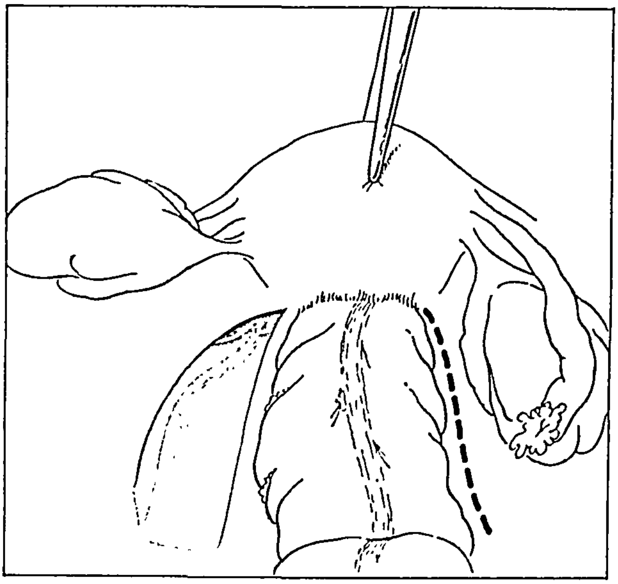

Fig. 2.—Peritoneal flaps should be so mobilized as to avoid injury to the ureter or its blood supply.

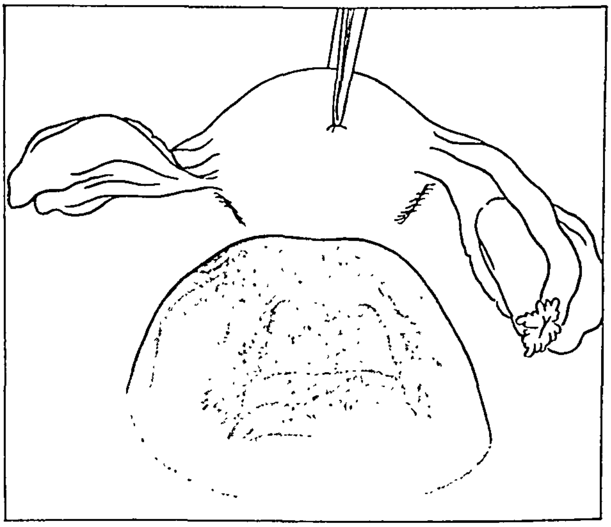

Fig. 3.—The thickened parametrium, particularly the involved uterosacral region, can then be removed.

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[8] McGuff, P.; Dockery, M. B.; Waugh, J. M., and Randall, L. M.: Surg., Gynec. & Obst. 86: 273, 1948.

vix, to leave ovarian tissue to stimulate implants left in the sigmoid wall or in the uterosacral region or to castrate and then treat the postmenopausal symptoms with estrogens is to invite an early recurrence of symptoms and a rightfully dissatisfied patient.

Effective Conservative Treatment May Require Radical Resection.—When endometriosis is discovered in the cul-de-sac, one should not assume that the disease will progress slowly after a conservative operation and be satisfied to hope that it will appear that one has accomplished more than should be expected from the procedure employed. Too many times, thinking that we were wisely conservative to leave pelvic adhesions undisturbed and the cul-de-sac obliterated, we have amputated the fundus at the internal os and, carefully preserving ovarian tissue, have left endometriosis in the uterosacral region, rectovaginal septum or rectosigmoid, to progress until such time as symptoms justify castration.

We are in complete agreement with Beecham's[9] plea to bisect the involved ovaries of younger women and preserve all the ovarian tissue possible. We are also in agreement when he says that one should not hesitate to do an indicated total hysterectomy because the rectosigmoid is adherent to the posterior aspect of the cervix and vagina. If one intends to be conservative and preserve ovarian tissue in younger women with endometriosis, one should recognize the tendency of this disease to extend retroperitoneally and be prepared to resect adequately at the time of operation.

When we recognized the tendency of endometriosis to invade the uterosacrals and extend retroperitoneally along the parametrium, it surprised us that symptoms due to ureteral compression have not been noted more frequently in this disease. Ureteral obstruction and eventual hydronephrosis, due to endometriosis in the pelvis, have been reported in a few cases. Castration has been the management employed in each instance. However, it is not necessary to castrate the patient to control this complication of the disease. The adnexa can be freed from beneath the broad ligament, after which the underlying parietal peritoneum can be opened (fig. 1). Peritoneal flaps should be so mobilized as to avoid injury to the ureter or its blood supply (fig. 2). When it appears difficult to develop a line of cleavage between rectum and the posterior uterus, cervix and vagina, this important step can often be accomplished, after opening the parietal peritoneum, from a retroperitoneal approach. The thickened parametrium, particularly the involved uterosacral region, can then be removed (fig. 3). Dissection is easier if there is indication to do a hysterectomy at the same time, but it can be accomplished without ligating the uterine artery. It takes more time than castration, but, in younger women, one should remember that the menstrual and reproductive functions usually need not be sacrificed to control this disease.

SUMMARY AND CONCLUSIONS

Endometriosis complicates menstruation and reproduction, but the disease is not often the factor primarily responsible for the frequent disturbances of either genital tract function. In younger women with extensive endometriosis, and those requiring reoperation, the complications develop that constitute present problems.

When castration is permissible, surgical treatment can be avoided by roentgen irradiation. The possibilities of endocrine therapy deserve further investigation. Too many inadequate resections and too much conservative but ineffective surgical treatment has been done in the past. Implants producing cul-de-sac adhesions often infiltrate the muscularis of the bowel wall and extend retroperitoneally along the parametrium, until the induration makes the uterosacral region rigid and occasionally the ureter is compressed. In such circumstances, castration or extensive retroperitoneal dissection is necessary to relieve the patient, and either procedure proves effective.

PANEL DISCUSSION ON ENDOMETRIOSIS

DR. JOE V. MEIGS, BOSTON, MODERATOR

DR. JOE V. MEIGS, Boston: Endometriosis is a common lesion, but the treatment of the lesion and present understanding of it are not very clear. In the past few years we have learned a few things, and I hope that our discussants will be able to carry these points to you. Endometriosis has a lot to do with infertility and also with pelvic pain, dysmenorrhea and the incapacitation of patients. In the nineties, all that was known about it was Dr. T. S. Cullen's work on adenomyosis of the uterus and Dr. W. N. Russell's work on the small piece of tumor he found in the ovary. In 1921, the late Dr. John Sampson presented a fine piece of work, both clinically and pathologically. There are some ideas in Dr. Sampson's presentation that I think need clarification. He said in one or two papers that cure of the disease follows removal of the ovaries. I am personally sure he did not mean that the ovaries should be taken out in every instance. He meant that it might be necessary only in the very bad cases. There are other approaches which should be tried before one does that. His most discussed theory has also been misunderstood. He said that endometriosis arose perhaps in some instances from reflux through the tubes. Dr. Sampson did not say that all cases were caused in this way. He also had other reasons for the causation of endometriosis. Endometriosis has much to do with the economy of our day. Statistics from our own hospital bear that out. It is, I believe, an economic disease.

DR. FRANCIS B. CARTER, Durham, N. C.: The first question is a request for further discussion on adenomyosis located at the cornea and the differential diagnosis from interstitial salpingitis. In 1887, Chiari made, in my opinion, a real contribution by calling attention to this entity and to these nodulations which often were obviously adenomyosis. The English school makes a great point of the nodulations which occur at the corneal areas. That is as much as I know about their diagnosis from so-called interstitial salpingitis. The next question is: Why is endometriosis so infrequently seen after cesarean section? Most cesarean sections should be extraperitoneal, and endometriosis would not be expected in the peritoneum but in the scar. Some scar endometrosis still occurs. That type was common in the days when hysterotomies were done abdominally and the uterus was curetted through the incision in the uterus. I do not know why more endometriosis does not occur. We like to pride ourselves on our technic. We do not have so much spillage into the muscles; they are protected better with our so-called drapes.

DR. CLAYTON T. BEACHAM, Philadelphia: Dr. Meigs has passed me several questions that have come forward. We are asked about the incidence of endometriosis in China, India and the Orient. Gynecologists there tell us that the disease is rarely seen. If we could compare the economic and educational levels of India and the Orient with similar groups in this country, I believe we should find the same incidence. We rarely encounter the disease in hospital ward practice. On the other hand, endometriosis is common in private practice, where the economic level and educational background have led to late marriage and long periods of use of contraceptive methods. Uninterrupted menstrual periods certainly favors the growth of endometriosis. Another question asked is: For the 50 per cent of our private patients who were treated without surgical intervention, how did we make the diagnosis? Medical and hormonal management, which mean the same thing, is employed in young women. We do not want to operate on these girls; we want them to have children. Frequently, the only complaint is dysmenorrhea. The employment of amphetamine N.N.R. (benzedrine®) and/or acetylsalicylic acid will usually afford relief. Pregnancy must be considered the ultimate in endocrine therapy, but why the physiologic amenorrhea causes endometrial implants to regress we do not know. Thus, we advise all these girls when married, even though the economic road is insecure, to become pregnant. The unmarried patients are encouraged to marry as soon as possible and, of course, to use no contraceptive method. The most valuable endocrine preparation we have at hand to enhance the chances of conception is thyroid. Many patients are hypometabolic and yet do not reveal significant basal metabolic changes. The empiric use of thyroid substance seems to favor conception. Testosterone is used for certain patients. Symptomatic relief is often obtained by using 10 mg. daily from the middle of the cycle to the onset of menstruation. If this fails to relieve pain, we may use the preparation throughout the cycle. We have observed several women who conceived while taking testosterone. Patients must be followed carefully while taking this endocrine preparation lest permanent secondary sex changes occur. It should not be used continuously beyond two months.

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[9] Beecham, C. T.: Surgical Treatment of Endometriosis, this issue, p. 971.

Dr. Meigs: Many questions have accumulated. The first one is: Will you discuss the mechanism by which endometriosis induces infertility? I think that is explained by the work of Dr. John Rock, Dr. Somers Sturgis and Dr. Westergren. The ovary can move on its ligament. The tube follows the ovary, so that when ovulation takes place the tube is near it and can pick up the ovum. In endometriosis the ovary is often adherent behind the broad ligament in a position which the tube cannot follow. That explains why women with endometriosis are often infertile. The next question: "You stated that infertility accompanies endometriosis and that pregnancy may cure it. How will you make the patient pregnant?" Infertility obviously accompanies endometriosis if the ovary is fixed. If the ovary is released and the endometriosis removed, there is a good chance for ovulation to take place in proper position to the tube. The next question: Does endometriosis occur in married women who have borne one or more children followed by a long period with no pregnancy? It certainly does. This brings up a point I wish to talk about. I have been struck by the great difference in the number of patients with endometriosis, as Dr. Beacham said a moment ago, in private practice versus hospital practice. Eight years ago we investigated 400 patients in my private practice and matched them against 400 in the Massachusetts General Hospital on the gynecologic wards. In private practice, 36 per cent of the patients had endometriosis. In the Massachusetts General Hospital, 8 per cent had endometriosis, the reason for the difference being that the patients from my own practice on whom I had operated were in the age group of 26 and older. These were patients who had married late in life. These were the ones who decided they would rather go to Bermuda the first year they were married than have a baby, and the next year they decided they would rather have a new car than have a baby and the next year they wanted a maid or a new house, or something. They kept putting off childbearing until they were 26 or 27 years of age. In contrast to these were the women on the wards of the Massachusetts General Hospital who married at the age of 18 or 19 or 20 and had many children. I thought perhaps those figures were fallacious, because I was interested in endometriosis and the surgical residents were not, but eight years later I repeated the same study. It is a fact that 35 per cent of the patients in my private practice have endometriosis, and in the Massachusetts General Hospital the figure is 8.75 per cent. I believe that endometriosis is an economic disease of the times, and a serious one. Young persons do not make enough money to have children, and as a consequence they practice some sort of birth control and put off having children. If they put it off, the woman has had at the age of 28, let us say, ten years of menstrual life which she was never meant to have. The monkey in the jungle begins to procreate as soon as she comes of age. We allow our children to protect themselves against having children because of the economics of the times. They cannot afford to have children, when, as a matter of fact, I think they cannot afford not to have them, because if they do not they later come to us gynecologists, and we struggle and work then to try to get them pregnant. Fathers and husbands, if they are in a fair economic position, should see if they cannot give their children money to help them out so they can do as nature intended them to do. The figures I have presented should illustrate the fact that the problem is an economic one. I think it would be a good idea if industry paid more money to the young men who want to get married so they can have children and live normal lives. I think late marriage and infrequent childbearing are the reason for endometriosis. Having been a surgeon for twenty years, I believe if a young patient who wants children has endometriosis of the sigmoid castration is entirely wrong. In these modern days, when we know how to do a sigmoid resection and prepare the patient for operation with antibiotic substances and sulfonamide drugs, I believe we can prepare the patient's bowel, resect the tumor and allow her ovaries to remain so that she may have children. One ought not to destroy a young woman's capacity to have children.

Dr. Randall: A question has been asked as to the dosage of diethylstilbestrol U. S. P. If used as an estrogen in the management of these patients, diethylstilbestrol is frequently administered in a manner calculated to prevent ovulation. Assuming that the effects of progesterone increase the symptoms, particularly the discomforts due to implants of endometriosis, prevention of ovulation, if possible, should decrease the patient's periodic pain. Ovulation can, of course, be temporarily inhibited any given month by giving 1 or 2 mg. of diethylstilbestrol daily for three weeks, beginning about the third or fourth day of the cycle. However, that method represents but one school of thought in using estrogenic substances. A more interesting possibility is based on the observation that, clinically, foci of endometriosis seem to improve remarkably during pregnancy. Since the approximate hormone levels during pregnancy are known, one might try to reproduce these levels by giving 50 to 125 mg. of diethylstilbestrol daily. While this use of the substance has been reported by some investigators, its effectiveness has not been generally appreciated. Another question has come in: Do you think that normal-looking ovaries should be investigated at the time of laparotomy when endometriosis is found in the other ovary? Most of us are of the opinion that implants of endometriosis develop rather slowly. Whenever endometriosis is found in one ovary, if one will bisect the other ovary, even when normal looking, a small area of endometriosis may be found which, when once removed, will not recur. I certainly think that ovarian bisection is worth while, as are efforts to excise endometriosis in the cul-de-sac, whenever it is intended to leave the patient with some ovarian tissue.

Dr. Meigs: We have many more questions, but I think we have all had enough for now. If you will send any further questions to me at the Vincent Memorial Hospital in Boston I will see that they are answered.

Francis Glisson.—In Cambridge the period of the early seventeenth century was marked by the appointment of Francis Glisson (1597-1677) to the regius chair. Glisson's name is familiar to every medical student who reaches the stage of the second M.B. He was a master in the art of exact clinical observation and in the accurate study of morbid anatomy. He began a phase of medicine which was to last for more than two centuries, a period of individual medicine when the physician, with no more equipment than his five senses, his experience, his instinct, and his knowledge, would deduce the diagnosis from acute and penetrating observation and would prescribe such remedies as were known or were believed to be effective. Glisson's name will be familiar to all who are interested in medical history because of his original observations on rickets, or *morbus anglicorum,* and for his classical work on the anatomy of the liver.—Sir Lionel Whitby, M.D., *British Medical Journal,* July 3, 1948.

THE PRIVATE PHYSICIAN AND PREVENTIVE MEDICINE

BRUCE H. DOUGLAS, M.D.
Detroit

The fields of preventive medicine and public health have to a large degree been commingled, so that in the minds of many the terms are more or less synonymous. Some, however, wish to draw a clearcut line between the two. Many physicians seldom stop to think how much of their activity, and how many services they render to patients, are actually preventive in character. These services are usually rendered as remedial of illness and are, therefore, looked on as curative. It is difficult to differentiate clearly among public health, preventive medicine and curative medicine; indeed, it is neither necessary nor really desirable that sharp lines be drawn between them.

Public health is no longer concerned only with environmental factors that influence health. Preventive medicine is not limited to some few specific measures which when administered to individual persons will protect them against certain communicable diseases. Nor is curative medicine solely concerned with restoring health to a patient suffering from some disability or disease.[1] Rather, many things done in any one of these three general fields contribute to all three. For example, the physician who diagnoses a case of typhoid and provides prompt treatment for the illness also realizes that the public health must be protected. First, he has the source of infection investigated by the public health agency; second, he arranges, if necessary, for preventive measures in the form of vaccination of those who have been subject to exposure, if perchance the source is a carrier whose infection cannot be cleared up at once. So without always realizing it as fully as they should, those engaged in these three fields must cooperate and, in the interest of the public health, integrate these phases of medical science.

The public also needs a fuller appreciation of the roles the public health agency and the private physician play in protecting its health. They may realize that the organized community must provide certain things that affect their health, such as a pure water supply and safe milk. It should also be realized that certain protective procedures having to do with individual persons, such as immunization against specific diseases, should be, partially at least, the responsibility of the person to procure for himself and for his family in the same way as food and clothing are purchased. The health officer should recognize this relationship and seek to educate the public to this point of view. He should also seek to organize a health program that will utilize to the fullest extent the services of the private physicians, as well as the facilities of other health agencies in the community, and thus provide for the public health and preventive medical needs of the people. Not all will agree with this concept, for many are of the opinion that all preventive procedures should be furnished through public clinics and that smallpox vaccination, the administration of protective treatments for diphtheria and similar procedures are not the function of the private physician.

THE DETROIT PLAN

In Detroit for approximately twenty years a definite program of participation by the private physician in giving a number of preventive services in his own office has been carried out successfully. This has been variously referred to as the "Medical Participation Plan" or the "Detroit Plan."[2] Many places now use various modifications of this method, and it has become increasingly evident that the public health agency will function most effectively when it works with and has the active cooperation of the private physicians of the community.

Briefly, the method referred to as the "Medical Participation Plan" provides that, as far as possible, those preventive services that consist of technics applicable to the individual person be administered by the private physician. The health department actively cooperates in this plan by education of the public to the need of preventive services and their availability in the community.

This plan entails an understanding and acceptance by the health department, the physician and the public, and each of these three must assume a fair share of the responsibility, if the plan is to succeed.

The Health Department.—The health department must assume responsibility for the application of the programs to be undertaken and in cooperation with the physicians, through their medical society, agree on the steps to be followed. In general, the health department is responsible for the giving out of information to the public regarding the service through the various publicity channels, as well as through personal instruction and direction by public health nurses, who urge those who need the various protective services to go to their private physicians. In addition, the health department distributes (and usually free of charge) the necessary immunizing agents for use by the physicians. The necessary forms for reporting work done are also provided by the official agency. Finally, provision must be made for those unable to pay for the service themselves. This may be done by arranging a modest honorarium for the physician's services in each case that cannot be paid for by the family.

It is also necessary for the health department to acquaint the physician with the details of the plan and the technics to be employed. This may be accomplished through postgraduate conferences, the official publication of the medical society and visits of medical members of the health department staff to the physician in his own office. This personal contact intended to explain the workings of the plan is by far the most effective.

The Physician.—The physician's responsibility is a collective and an individual one. First, through the organization of the medical society, there should be a public health committee available to review and make plans with the representatives of the public health agency for carrying out and coordinating the various programs undertaken. Major matters of policy should be referred from this special committee to the executive council of the society for approval, so that all physicians may know that a given program has the official endorsement of the society. The participating physician assumes responsibility for being equipped to provide the needed preventive services and to explain

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From the City of Detroit Department of Health.

Read before the Section on General Practice at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

[1] Miller, J. A.; Baehr, G., and Corwin, E. H. L.: Preventive Medicine in Modern Practice, New York, Paul B. Hoeber, Inc., 1942.

[2] Geib, L. O., and Vaughan, H. F.: The Physician as a Health Worker, J. A. M. A. 97:366-369 (Aug. 8) 1931.

to parents and others their value. This type of work is done largely by those in general practice and by pediatricians. Many physicians limiting their work to special fields will not wish to participate in this type of work. Even such a specialist, however, should have an understanding of the programs, and when a mother asks for advice regarding protective treatments for her child, he should not give the impression that it is a trivial matter beneath his dignity as a specialist. Rather, he should show a definite interest and, if not doing such work himself, refer the patient to a participating physician.

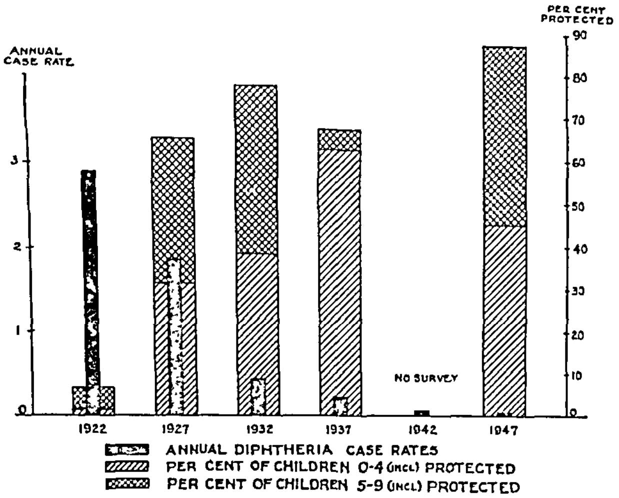

Chart. 1.—Graph showing annual case rate for diphtheria for certain years in Detroit and the percentage of children 0 to 9 years of age protected. Solid black areas represent the annual case rate. Areas diagonally marked indicate the per cent of children 0 to 4 years of age inclusive and cross-hachured areas, the per cent of children 5 to 9 years of age inclusive who were protected against diphtheria.

A busy practitioner rushed with the care of many sick patients can easily give the impression that immunizations, physical examinations and other preventive services are of secondary importance. With the shortage of physicians of the recent war period, it was easily understandable that many physicians fell into this attitude. If such an impression should be passed on to the public extensively, it can readily be seen that a serious failure for a medical participation program could develop. It is of paramount importance that the practicing physician maintain his interest and knowledge of preventive medicine and further that he stimulate his patients. A cooperative program of this type needs continuous public stimulation. It is, therefore, apparent that each physician has a responsibility in making such a program succeed.

The Public.—The public, of course, also has a responsibility in this program, which consists largely in being willing to take part by seeking preventive procedures from the private physician and recognizing them as valuable services which should be purchased just like food, clothing and shelter. In sharp contrast to the costs of medical care for illness, it is possible to predict quite accurately the amount of care and the time when preventive medical service will be needed. Curative medical care is largely unpredictable and, therefore, cannot be provided for as readily in the family budget. The responsibility of the public, then, is largely to have an intelligent understanding of the need for preventive services and to seek them.

RESULTS OF THE PLAN

With this brief presentation of the general plan for medical participation in public health and preventive medicine, it should be of interest to see what has been accomplished through this type of plan.

The protection of children against diphtheria was the first of the specific programs undertaken and the results have from time to time been reported by Geib and Vaughan,[3] who were largely responsible for the development of the "Medical Participation Plan."

This program was started in 1928, at which time it was agreed that no public clinics for the administration of protective treatments against diphtheria would be conducted and that all such treatments would be given in the physicians' offices. An intensive educational campaign was started to acquaint every one with the new plan. Lists of cooperating physicians who were willing to participate were compiled and used to refer parents who had no regular physician. Eleven hundred physicians enrolled during the first two years of the program. This number represented almost all the general practitioners of the community and some of the specialists.

The effectiveness of this program is well illustrated by chart 1, which indicates the advances made by showing the proportion protected in each fifth year since the program began, together with the case rate. The death rate, too, has fallen notably in this period, as shown in the tabulation.

	No. of Deaths		No. of Deaths
1922	201	1937	26
1927	278	1942	10
1932	61	1947	3

1948 (to June 1) 0

It, therefore, has been possible to provide an effective control in a large population and to bring diphtheria to a significantly low point. At the onset of this program designed for the protection of children against certain contagious diseases through immunization, a considerable expenditure by the health department was required to pay physicians for those cases in which the parents were unable to pay. This cost has steadily dropped, however, until now the amount is small without any corresponding decline in the number of protective treatments. The public has, therefore, become aware of the value of such procedures and the physicians have succeeded in incorporating the work into their regular practice.

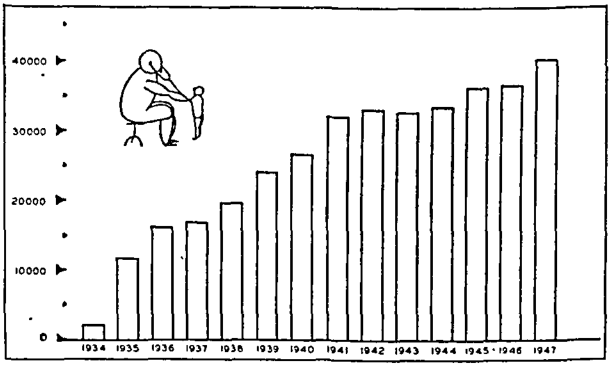

Chart. 2.—Graph showing numbers of physical examinations per year conducted by private physicians on children entering school in Detroit.

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[3] Vaughan, H. F.: Medical Participation in Public Health Work, Am. J. Pub. Health 22: 933-937 (Sept.) 1932. Geib and Vaughan.[2]

Smallpox vaccination has been carried out in a similar way and with equally good results. The proportion of children who have been vaccinated by the time they enter school is now 81 per cent. There have been no cases of smallpox in Detroit in the last five years.

Vaccination against whooping cough has more recently been added to the participation program, and, while extensive application has been made (65 per cent of children vaccinated at school entrance), the effects on the control of this disease are less spectacular.

School health examinations are included in the medical participation program. The health department provides an examination form which the private physician uses as a guide to the type of examination desired. When he has completed it, it is sent in to the school. These examinations are asked for on first entrance to school, on entrance to intermediate school and in high school. When the school child goes to his own physician for such services, the likelihood of his continuing to consult his private physician after school days are over is considered greater than when he has come to expect such services from a full time school physician. These examinations are not compulsory but are strongly urged. In 1947, 67 per cent of the new entrants to school had been examined by their own physicians.

Chart 2 indicates the growth of this program.

In Detroit a permit from the health department is required in order for one to work as a food handler. One of the requirements for securing such a permit is a physical examination for the detection of possible communicable disease. These examinations are done by private physicians as part of the medical participation program. There are more than 50,000 examinations done each year in this program.

Other activities in the preventive field have been approached in this way with results which demonstrate that the private physician can incorporate preventive procedures into his private practice effectively. The cooperation of the private physician, collectively through his medical society and individually through his own participation with the official public health agency, can provide a community program in public health that is acceptable to the public and effective.

ABSTRACT OF DISCUSSION

Dr. Paul A. Davis, Akron, Ohio: Every physician is, of necessity, a practitioner of preventive medicine and public health, and he should assume this obligation. He should have a record of his patients' immunizations and advise them when they need "booster shots" or reimmunization. As scientific medicine progresses, the multiplicity of injections will be decreased, as in the case of the alum-precipitated combination of pertussis, diphtheria and tetanus toxoids which has now been developed. A portion of my practice entails the immunization of persons going to foreign countries for various periods of time on business. Few countries have the same requirements; the northern countries do not require as strict a schedule as do those situated near the equator. The incidence of typhoid, smallpox, malaria and yellow fever has been greatly reduced, and in the near future a graduate of medicine may never see a case of any of these. This has been accomplished through preventive medicine and the cooperation of the physician in general practice. If such a plan as the speaker has described be made a cooperative one throughout the country, then the incidence of all contagious and communicable disease will be reduced to a minimum, the public will be protected and the cost of medical care reduced. Cooperation and integration of the physician in general practice into preventive medicine and public health plans will accomplish the desired results.

Dr. Winfred B. Harm, Detroit: The general practitioners of Detroit thank Dr. Douglas for taking up this plan of public health service. He has found we are capable of doing the work, and we have found that the Department of Health continues in good feeling with the general practitioners of the community. Because of the good will between the two groups, it has been a pleasure to work with Dr. Douglas; we in Detroit take great pride in the results of the programs of the Detroit Department of Health. Many of you probably do not know that Detroit may no longer take part in the competition for the city health award. We won it so many times that they quit giving it to us.

PRENATAL MATERNAL FACTORS IN MONGOLISM

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In the etiology of mongolism, two problems must be distinct: (1) the causes leading to the abnormal development of the embryo and (2) the abnormal factors operating in the embryo to produce the characteristic growth disorder. The present study deals only with the former problem, the prenatal maternal condition. Since mongolism is present at birth and the characteristic anomalies date back to early stages of fetal development, the causative factors are either of a genetic nature or environmental factors operating in the mother during gestation.

Table 1.—*Increase in Percentage of Mongoloid Births with Increase in Maternal Age*

	Maternal Age, Yr.					
	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 47
Percentage of mongoloid births........	0.082	0.152	0.236	0.857	4.242	12.5

In 1939, Benda, Dayton and Prouty[1] presented a study of 250 pregnancies each resulting in the birth of a mongoloid child. An analysis of the material produced evidence that mongolism is not due to genetic factors. The material indicated also that neither a germ mutation nor a primary inferiority of the ova was an acceptable explanation. These conclusions were based on the following facts: 1. The frequency of occurrence of a mongoloid child increases in proportion to advanced age of the mother. While 1 mongoloid child may be expected among 8,000 births if the mother is between 20 and 24 years of age, the incidence increases to 12.5 per cent if the mother's age is between 45 and 47 years. This was impressively demonstrated in a table prepared by Bennholdt-Thomsen.[2]

2. A study of the birth order of mongoloid children shows that in large-sized families, the monogloid child is found near the end of the line of siblings. A mongoloid child was never born at the beginning of a sequence of six to fifteen children, while other congenital defects occur at any place of the birth order (Benda[3]).

This paper was presented at the First International Congress on Mental Deficiency, Boston, May 18 to 22, 1948.

Dr. Benda is director of research and clinical psychiatry, Walter E. Fernald School, Waverley, Mass., and instructor in neuropathology, Harvard Medical School, Boston.

[1] Benda, C. E. Dayton, N. A., and Prouty, R.: On the Etiology and Prevention of Mongolism, Am. J. Psychiat. **99**: 822, 1943.

[2] Bennholdt-Thomsen, C.: Ueber den Mongolismus und andere angeborene Abartungen in ihrer Beziehung zum hohen Alter der Mütter, Ztschr. f. Kinderh. **53**: 427, 1932.

[3] Benda, C. E.: Mongolism and Cretinism, New York, Grune & Stratton, Inc., 1946.

3. As Macklin and Snyder[4] stated:

> . . . When the sibship consists of five or less, a random group of families will have a majority showing only one affected offspring. It is not until the sibship size increases to six that one would expect more instances of two or more children affected than of one affected.

The aforementioned study[3] included 79 cases in which the mongoloid child was born in a family with six or more children and 50 cases were added from the material of the Finnish investigator Lahdensuu. Of 429 families, 31 per cent, or 129, had six or more children without a single instance of multiple mongolism. This is sufficiently significant statistically to indicate that hereditary factors can be ruled out. There are, however, cases of more than one mongoloid child in a family. These cases require a different explanation.

TABLE 2.—*Data on Women Having Mongoloid Children at 41 to 52 Years of Age*

Case No.	Age of Mother	Number of Previous Children	Previous Abortions	Menstrual History	Bleedings During Pregnancy	Interval Before Pregnancy Occurred, Yr.	Physical Condition of Mother	Mental Condition	Comment
1	50	7	Unknown	Irregular; "change of life"	None	3	Hysterectomy performed after birth	Fair	
2	52	8	One before this child; one before last	Irregular; "change of life"	None	9	Felt "deadly ill"; "different from other pregnancies"	Fair	
3	43½	2	Two previous to this pregnancy	Regular	None	10 since living sibling; 4 after one born dead	Fibroid of uterus; last child died at birth	Fair	
4	43	1	None	Menstruation "overdue" several times; Hemorrhages	None	10	Fair; pregnancy occurred after injection of estrone U. S. P.	Fair	
5	43	2	None	Had stopped menstruating; "change of life"	None	11	Pregnancy not recognized until fifth month	Fair	Never menstruated regularly afterward
6	45	3	*Unknown*	*Menopause*	Unknown	16	Pregnancy not expected; menopause	Fair	Mother (case 33) listed in table 3
7	42	2	None	Regular	Attempted abortion unsuccessful	11	Retroflected uterus; previous thyroid infection (abscess)	Fair	Took ergot tablets for several weeks after skipping first menstruation
8	40 10/12	1	Two	Regular	Threatened abortion	2	Thyroid deficiency; threatened abortion treated with "antuitrin"	High-strung; nervous	
9	42	1	None	Regular	None	11	Gallbladder trouble; severe vomiting; weight loss throughout pregnancy	High-strung; nervous	
10	41	None	None	Regular	None	4	Had spastic infantile paralysis	Fair	
11	43	3	None	Irregular last 4 years; "change of life"	None	7	Twin pregnancy; other twin dead; (weight 9 lb.); mongoloid weighed 8½ lb.	Fair	
12	43	2	None	Menopause for several years	None	12	Pregnancy not recognized until fifth month	Fair	
13	46	11	One	Menstruated until age of 52 years	None	4	Thought to be beyond age	Fair	

4. The observations on twins of whom both or one is a mongoloid are not conclusive.

5. The theory that mongolism develops from the fertilization of an abnormal "overaged" ovum can not be entirely excluded by present methods. The material seems, however, to indicate that extrinsic factors, operating at a later date, seem of more importance.

The conclusion was offered that the common denominator for all conditions under which mongolism develops is a "threshold condition of hormonal sterility":

> The maternal organism appears to be unable to produce the proper endocrine environment for the embryo. The necessary adjustments are either delayed or insufficient, the result being that the fetus is deprived of a number of nutritional factors which are essential for its proper development. The maternal condition is due either to the approach of the menopause (women beyond 40 years of age) or to an insufficient response to fertilization (young women, or women above 30 who had no children before). There is a third group of cases in which mongolism occurs on account of the fact that an intercurrent illness has rendered the mother temporarily unfit for a pregnancy (p. 832).[1]

Since Gregg and a number of other scholars (Wesselhoeft)[5] published their observations on the importance of virus diseases in the production of congenital malformations, the general interest in problems of prenatal health and hygiene has greatly increased. Of all abnormal prenatal conditions, mongolism takes the largest toll among the normal population; about 3 children in every 1,000 births in a general lying-in hospital are affected with mongolism. While the importance of prenatal factors for the health of the newborn is increasingly recognized, many pediatricians and obstetricians show a respectful skepticism toward the data so far presented and seem to feel that the material is not yet conclusive.

From previous studies of more than 325 case histories (Benda),[3] it was concluded that certain factors seem to appear in repetition and should be the subject of further investigation by a method of personal interviews with the mother. A questionnaire was designed which contained the most important questions, but each interview was conducted after personal contact had been established and details were gathered independent from the questionnaire.

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[4] Macklin, M. T., and Snyder, L. H.: More Wishful Thinking About Mongolian Imbecility, J. Hered. **38**: 83, 1947.

[5] Wesselhoeft, C.: Rubella (German Measles), New England J. Med. **236**: 943 and 978, 1947.

Table 3.—*Data on Women Having Mongoloid Children at 31 to 40 Years of Age*

Case No.	Age of Mother	Number of Previous Children	Previous Abortions	Menstrual History	Bleedings During Pregnancy	Interval Before Pregnancy Occurred, Yr.	Physical Condition of Mother	Mental Condition	Comment
14	35	2	None	Normal	At end of second month	4	Gallbladder attacks (removed after birth of child); felt ill first 3 mo.	Depressed	
15	39	None	None	Normal	None	7	Felt ill	....	
16	31	None	None	Normal	Massive hemorrhage at 3 mo. lasting 9 days	2	Gallbladder trouble; removed after delivery	....	2 mo. rest in bed; hormone treatment
17	31	None	None	Normal	None	3	Severe vomiting in second month	Depressed	
18	35	None	Two	Normal	Slight bleedings	7	Fair		
19	35	2	None	Normal	Placenta previa	5	Fair	....	Placenta previa in previous pregnancy also
20	33	None	One; menstruated once before this pregnancy	Normal	None	Unknown	Thyroid deficiency; low metabolism; heavy weight	Slow; forgetful	Took 2 gr. (0.13 Gm.) thyroid, alternating with 1 gr. (0.06 Gm.)
21	37	3	None	Abnormal (see comment)	At first two menstruations	..	History of Graves' disease; miserable; heart murmur	Depressed; nervous	No menstruation for 4 mo. of year before
22	39	None	Two	Normal	None	9	Fair	Depressed; worried; divorce case	
23	33	1	None	During adolescence no menstruation for 4 years	None	3	Thyroid deficiency; metabolism —40; dry skin; headaches; tired	Fatigue	Treated with thyroid during pregnancy
24	37	3	Menstruation 6 weeks overdue before this pregnancy	Irregular; 20 to 22 days	Several near end of pregnancy	5	Placenta previa; fibroid uterus removed after delivery	....	
25	36	2	None	Irregular; twice monthly	None	9	Twin pregnancy	Depressed; lost weight	
26	37	1	Two (severe bleedings)	Irregular; sometimes 5 mo. without	None	5; artificial enlargement of cervix	Severe vomiting; pains; fibroid in uterus	....	Waited 4 yr. before first child
27	39	1	None	Irregular	None	11	Thyroid deficiency suspected	Easily upset, nervous	3 sisters treated for thyroid deficiency
28	37	None	None	Normal	First menstruation slight	9	"Swelling of thyroid" diagnosed at 18 yr.; ovarian cysts; thin; lost weight	Nervous	Married 9 yr. without child
29a	36	1	Two	Normal	None	10	Uterus damaged in first pregnancy by high forceps; no pregnancy for 5 yr.	Nervous; weighs 88 lb. (39.9 Kg.)	Two mongoloids in same family
29b	40	3	Two	Normal	None	2	Very thin; worn out	....	Normal child between
30	37	4	None	Normal	Bleedings at 3 mo.; again at 8 mo.	4	Placenta previa; in bed for 2 mo.	....	Fourth child died of placenta previa before mongoloid
31	36	None	None	Normal	Threatened abortion after 2 mo.	7	Migraine; high metabolism; ovarian cysts	....	
32	33	None	None	Irregular	Bleedings in sixth week after start of pregnancy	1	Retroflection of uterus; cyst of uterus; low metabolism (—12); hypothyroidism	....	Treated with thyroid ½ gr. (0.03 Gm.) 3 times daily
33 (daughter of mother in case 6)	36	1	None	Irregular in younger years; no menstruation when under stress	None	10	At 27 yr., one ovary removed; takes ovarian hormones; hyperactive thyroid	Nervous	6 to 9 drops iodine daily during pregnancy
34	35	None	None	Very irregular; went 2 to 3 mo. without	Menstruated 4 times during pregnancy	12	Hypothyroid; one ovary removed; other partly removed five years before	....	Time of impregnation known; husband on furlough 5 days

Of the last 10 patients who were examined, but who were not included in the statistical evaluation, 8 had a definite history of difficulties during pregnancy. Six examples may be cited:

HISTORIES OF CASES

Case 1.—The woman's age at the birth of the mongoloid child was 32 years. She had been married in 1939. Her first pregnancy, in 1941, ended in miscarriage in the second month. The second pregnancy was terminated by miscarriage in the third month. The third pregnancy, in 1945, was terminated by the birth of a premature baby in the seventh month. The baby died five hours after birth. The fourth pregnancy, in 1947, ended in the birth of a mongoloid child. The mother's menarche was at the age of 14. Her menstruation was irregular in the first year, occurring only three times, after which it was normal. A fibroid tumor was removed in 1944 after the second miscarriage, together with the appendix.

Case 2.—The maternal age at the birth of the mongoloid child was 33 years. The first child died three days after birth with the diagnosis of hemorrhagic disease. The second pregnancy was terminated by miscarriage in the third month. The third pregnancy was terminated by miscarriage in the fourth month. Before the mother became pregnant again, the physician told her she was "run down." She was treated with thyroid and multiple vitamin preparations, including vitamin E. She became pregnant again and was treated throughout pregnancy with vitamins and corpus luteum hormone. The result of this pregnancy was a normal, very active child. The fifth pregnancy occurred three years later, with no treatment. A mongoloid child resulted.

Table 4.—*Data on Women Having Mongoloid Children at 21 to 30 Years of Age*

Case No.	Age of Mother	Number of Previous Children	Previous Abortions	Menstrual History	Bleedings During Pregnancy	Interval Before Pregnancy Occurred, Yr.	Physical Condition of Mother	Mental Condition	Comment
35	30	None	None	Regular	Slight bleedings and pains in 3d and 4th menstrual cycle	2	Thyroid enlargement; question of goiter	Tired; tense; highstrung	
36	27	1	None	Regular	None	4	Thyroid deficiency diagnosed 7 yr. ago (basal metabolic rate, —27); treated 3 mo.	Tired; slow	Dry skin and some evidence of mild hypothyroidism
37	30	None	None	Regular	Some bleeding in first menstruation	6	Albuminuria; high blood pressure (170 systolic)	Migraine attacks	
38	28	None	None	Irregular	None	4	At 6 weeks; electric shock in bath tub; house painting 4 mo.	Felt miserable	Nervous breakdown at 15 yr. before menarche
39	24	None	None	Regular	Attempted abortion; 2 days' bleeding	1	Took pills until bleedings started	Rejected pregnancy; artificial abortion attempted; became scared	"Salvaged abortion"
40	24	None	5 mo. before this pregnancy	Regular	None	2	Severe vomiting first 4 mo.	Felt miserable first half of pregnancy	Pregnancy followed abortion; another 2 yr. later
41	30	1	One	Regular	None	5	Thyroid deficiency; gained weight	....	One of twins
42	29	None	None	Irregular	3d and 4th mo. bleedings, 2d missing	1	High blood pressure; strict diet maintained; infantilism	Easily upset	
43	27	None	One	Regular	None	2	Thyroid deficiency treated previously; overweight	....	"Hormonal treatment from 3 mo. to end of pregnancy"
44	25	None	Two	Irregular cycle of 5 wk. or more	None	3	Pernicious vomiting from beginning of pregnancy; contracture of uterus; 5 mo. in bed	....	Last two previous pregnancies caused "pernicious vomiting"
45	28	2	Two before, one after mongoloid child	Regular	None	1	Last miscarriage left blood clots; curattage	Irritable; weak	
46	25	None	None	Regular	At end of 3d month	3 after marriage	Right salpingectomy 2½ yr. before this pregnancy	....	Progesterone "proluton" injections for 3 mo.
47	25	None	None	Regular	None	..	Thyroid deficiency diagnosed 6 yr. before; took thyroid	Easily upset	Thyroid treatment

Data on Women Having Mongoloid Children at 18 to 20 Years of Age

Case No.	Age of Mother	Number of Previous Children	Previous Abortions	Menstrual History	Bleedings During Pregnancy	Interval Before Pregnancy Occurred, Yr.	Physical Condition of Mother	Mental Condition	Comment
48	18	None	None	Irregular; twice monthly	Menstruated in 2d and 3d mo.	1	Later operated on for abscess of ovary and tubes removed	Highstrung; nervous	
49	18	None	None	Irregular to time of pregnancy, lasting 7 to 24 days	Threatened abortion in 7th mo.	1	Malaria at 11 yr.; liver trouble	Depressed	
50	20	None	None	Regular	None	2	Did not become pregnant until treated with estrogens	....	

Case 3.—The maternal age at the birth of the mongoloid child was 27 years. The mother started to menstruate at the age of 11 years, but menstruation stopped before she was 12 years old. It remained irregular and was usually delayed. Her only pregnancy was at the age of 27. It terminated in the birth of a mongoloid child. Afterward, she underwent a medical study through which her condition was diagnosed as pituitary deficiency. She was only 4 feet 11 inches (149.9 cm.) tall, with a slim, infantile and delicate body build. During her pregnancy she suffered from excessive vomiting day and night and was kept in bed for several weeks. Since she was under pituitary treatment, she menstruated regularly during the last sixteen years. However, she never became pregnant again.

Case 4.—The maternal age at the birth of the mongoloid child was 24 years. The mother's menarche was at 12 years of age, but menstruation was never regular up to her first pregnancy. In the third month of the pregnancy she had a severe hemorrhage and was kept in bed for a month. In a later period of the pregnancy smaller bleedings occurred. Three weeks before term, another severe hemorrhage started and the baby was delivered by cesarean section. The diagnosis was placenta previa.

Case 5.—The maternal age at the birth of the mongoloid child was 35 years. The mother was married in 1941. The pregnancy occurred soon afterward. At the sixth week of pregnancy she had a rather severe hemorrhage and was kept in bed for one month. In the sixth month of pregnancy several more bleedings occurred after a light fall. The pregnancy terminated in the birth of a mongoloid child. The next two pregnancies in 1943 and 1944 both terminated in miscarriages at six weeks. The woman was 5 feet 6 inches (167.6 cm.) tall, weighed 187 pounds (84.8 Kg.), having previously weighed more than 200 pounds (90.7 Kg.). She was nervous and highstrung and her appearance suggested an endocrine deficiency.

Case 6.—The mother was married in 1930. The first child, a normal girl, was born in 1932. The parents practiced contraception for about four years, but decided then to have another child. No pregnancy took place for another four years. When the mother became pregnant, she continued to menstruate through the first three periods and did not realize that she was pregnant. A severer hemorrhage occurred at the end of the third month, when the diagnosis of pregnancy and threatened abortion was made. Treatment consisted of rest in bed. The woman was unusually heavy, weighing 194 pounds (88 Kg.). Her height was about 5 feet 5 inches (165 cm.). She was fat, tired and nervous, and her appearance suggested hypothyroidism.

MATERIAL

The 50 new case histories which are presented in the following tables are the result of fifty-four interviews. Four instances in relatively young women were excluded because no explanation could be found. In the previous studies, about 10 per cent of the cases could not be explained. The remaining 50 cases were divided into four groups according to age, and the results are tabulated in tables 2 to 4.

EVALUATION OF OBSERVATIONS

I have emphasized on various occasions that mongolism is not a malformation or "monstrosity" (Ingalls),[6] but a deceleration of normal growth during the fetal period from about the sixth to the fourteenth week. At the time of most intensive fetal growth, some factors seem to slow down the growth rate, with the result that certain developments which usually take place in a matter of days are not properly completed. Failure to complete certain basic developments in fetal life cannot be fully corrected in a later period. In mongolism a temporary retardation or deceleration of growth occurs which makes the mongoloid newborn infant a physiologically "immature," "ill finished" baby.

TABLE 5.—*Percentage Incidence of Significant Symptoms in Each Age Group*

Age Group of Mothers, Yr.	Menopause or Menstrual Irregularities Before Pregnancy, %	Long Interval (3 to 16 Yr.) Before Birth, %	Bleedings During Pregnancy, %	Thyroid Troubles, %	Uterine and Ovarian Anomalies %	Placenta Previa, %	Incidence of Previous Abortions, %	Twin Pregnancy, %
41 to 52	53.9	92	0.8	0.8	15.4	0	36.2	0.8
31 to 40	47.6	81	48.8	38.5	63.5	14.3	19.0	0.8
21 to 30	23.1	46	38.5	38.5	23.0	0	38.5	0.8
18 to 20	67.0	33	67.0	0	0	0	0	0

In studying the factors leading to such decelerated growth, I postulated that there cannot be one uniform "cause" because the constellation of factors differs in various age groups. The most outstanding symptoms are tabulated in table 5.

In the age group of 40 to 52 years, 53.9 per cent of the women were actually in the menopause and pregnancy occurred against expectation. Pregnancy was frequently not recognized until about five months had passed. The fact that these women were beyond the child-bearing period is further emphasized by the long interval between previous pregnancies and the last one. With the exception of 2 women with an interval of two and three years, respectively, all intervals ranged from four to sixteen years; 9 women, or 69 per cent, had an interval of seven years or more.

If mongolism is considered due, not to a single cause, but to a constellation of abnormal factors, it must be realized, that in each case, there is a concurrence of several symptoms of varying significance. Aging of the female organism leads eventually to cessation of the menstrual cycle, to involution of the ovary and of the uterine mucosa and to a general loss of adaptability. Of the 13 women above 40, 4 were above 45 and 3 had actually stopped menstruating (cases 1, 2 and 6). One woman (case 13) menstruated until the age of 52 and the particular factors working in this instance are not clear. Of the 5 women aged 43, 4 had actual signs of menopause (cases 4, 5, 11 and 12), while in 1 (case 3) two previous pregnancies terminated in abortions and the last full term baby died at birth. The mother had a fibroid tumor of the uterus. Of the remaining 4 women between 40 and 42, one attempted unsuccessful abortion and 1 had a threatened abortion. One woman (case 9) was without child for eleven years; she had severe gallbladder trouble. Another woman, a small, short person with a conspicuous curvature of the spine, was the victim of earlier poliomyelitis.

Many physicians consider mongolism as something outside the realm of possbilities which could not occur in their families or in those of their friends. It must be emphasized that any normal mother is potentially the mother of a mongoloid baby, if she is approaching menopause or carries her child under certain adverse conditions. A glance at the group of mothers who had a mongoloid child after the age of 41 shows that they were average to superior citizens who constituted a healthy portion of the population. The 13 mothers had previously given birth to forty-three living children. Eight of them, or 61.5 per cent, had two or more children. The siblings of the mongoloid children were all normal. Many were honor students in schools or universities, successful soldiers or married women. The women who had a mongoloid child after 41 years of age had a normal menstrual history and, as a group, were mentally sound and well adjusted. Physical examination showed no significant anomalies; only those illnesses were encountered which one might expect in any sample of adults of that age group.

If the assumption is correct that a mongoloid child can be the result of any pregnancy in which there is an abnormal biologic response to impregnation, brought about by the physiologic aging of the maternal organism beyond the age of 41, then one may look for factors with a similar effect in those women who have a mongoloid child in their thirties or twenties.

As table 5 shows, the most outstanding symptom in the age group of 31 to 40 is the slow fertilization time. In the majority of cases the information was given that the mother had wanted a child, but in spite of her desire no pregnancy had occurred. As may be seen from the table, in the maternal age group between 31 and 40, 17 of 21 women, or 81 per cent, had a waiting time of three years or more, and 13, or 62 per cent, waited from five to twelve years for the birth of a child who was frequently the first or second one. It has not been sufficiently emphasized what it means to parents in their thirties who are mature, economically established and anxious to have children, when they have to wait five to twelve years for a pregnancy in spite of regular intercourse and opportunities for impregnation. In 10 cases, or 48 per cent of this group, the mongoloid was the first child, after such a waiting period. This fact, to which I called attention as the "inability to become pregnant," is of great clinical significance; it indicates either lack of fertility or inability to maintain a pregnancy. In this connection the histories of previous abortions (15.7 per cent), bleedings during pregnancy (48.8 per cent) and menstrual irregularities in preceding years (47.6 per cent) are of increased importance. Bleedings during pregnancy occurred in almost half of the cases. These bleedings appeared in two ways. A number of mothers reported that they had continued to menstruate during two or three months of pregnancy and that they had, therefore, not been sure they were pregnant. Some skipped one menstruation and menstruated again at the end of the second and third month.

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[6] Ingalls, T. H.: Pathogenesis of Mongolism, Am. J. Dis. Child. 73: 279 (March) 1947.

In other cases, the history indicated definitely a threatened abortion, which was treated by the attending physician. The 48.8 per cent of hemorrhages in that age group compare with figures on threatened abortion in the general population given by Rutherford (4 per cent)[7] and Paine (3.8 per cent).[8] Even though Hertig and Livingstone[9] were of the opinion that the percentage of threatened abortions is slightly higher in private practice, this unusually high number in cases leading to the birth of a mongoloid child deserves attention. Beidleman[10] also observed an increase of threatened abortions in his study of mongolism in the Boston Lying-In Hospital. In all age groups together, his percentage was 23.

Indication of hormonal abnormalities is further given by the high percentage (47.6) of menstrual irregularities before pregnancy. A clue as to the type of endocrine disorders which may be of some significance is the high percentage of thyroid disorders reported in the histories. The present series shows a percentage of 38.5. Although reliable control material is not immediately available, the percentage is much higher than one may expect in a group mainly observed in an Eastern border state. That the material is significantly increased is shown by the fact that the mothers of mongoloid children between 21 and 40 years of age had known thyroid dysfunction in 38.5 per cent, while in the age group above 41 years, only 1 woman with the condition was reported. If thyroid dysfunction were a common disease in the population in general, the older age group should have a higher percentage of histories of thyroid dysfunction than the younger age groups. Moreover, the material includes only women treated by physicians for this deficiency, while the appearance of several others seen at interviews suggested similar difficulties. If thyroid deficiency in the mother is of some significance, then the incidence of mongolism should increase according to the geographic distribution of thyroid deficiencies. Myers[11] (Toronto) reported a frequency of recognized thyroid disorders of 9 to 1, compared with a control group of the same size and kind. From this he concluded the possibility that mongolism is related to maternal thyroid disorders:

> . . . If so, it is reasonable to expect that mongolism will occur somewhat more frequently in those areas in which thyroid disorders are more frequent.

In mapping out the distributions of mongoloid births and of instances of death due to diseases of the thyroid gland, Myers determined the geographic areas of the province of Ontario, Canada, with highest thyroid rates: The proportion of cases of mongoloid children, born in the area of highest "thyroid rates" was "43.1 % . . . as compared with 24.6 % for the control group." Myers not only considered this a significant statistical difference but expressed the view that the same factor may explain the greatly reduced fertility of the mother giving birth to a mongoloid child. According to Hoskins,[12] the thyroid ranks second only to the pituitary as a cause of involuntary sterility in human beings. These observations may possibly serve to explain the multiple incidence of mongolism in some families.

The new series of cases contains 1 instance of mongolism in two generations. This patient (case 6) had a mongoloid child during her menopause, having given birth previously to three normal children. The mongoloid child was born at a maternal age of 45 after an interval of sixteen years. One of the daughters (case 33) gave birth to a mongoloid child at the age of 36. She gave birth to one normal child but had no other child for ten years. She was treated for hyperthyroidism and one ovary was removed. After the operation, she was said to have had insufficient ovarian function and was treated with ovarian hormones as substitute therapy throughout the years. One patient (case 27) reported that three of her sisters were treated for thyroid deficiency. Another patient (not included in this material) gave a similar history:

> A 24 year old pretty, but overweight, woman had a mongoloid as her first child. The woman was slow and somewhat inactive. In spite of little eating, she gained 20 pounds (9.1 Kg.) during pregnancy with her mongoloid child, who weighed only 5 pounds (2,268 Gm.) at birth. Her sister, a married woman of 25, is unable to become pregnant and is now under treatment for thyroid deficiency.

Of the women 63.5 per cent had a history of previous uterine or ovarian disturbances. Placenta previa occurred in 14.3 per cent of the pregnancies.

Proceeding to a discussion of the group of mothers who had a mongoloid child in their twenties, one finds the same constellation which was observed in the age group above 31. The incidence of thyroid disorders was 38 per cent. Difficulties in becoming pregnant were seen in 46 per cent. Bleedings during pregnancy occurred in 38.5 per cent and an irregular menstrual history was given in 23.1 per cent. The incidence of previous abortions (38.2 per cent) with 2 instances of two abortions each is also significantly high. While the long waiting time in this age group is less conspicuous, because of the youthfulness of the women, the constellation of factors is identical and bears out the importance of an early recognition and treatment of this condition.

The last group of mothers, those 18 to 20 years old, is too small for percentage evaluation. With 3 cases previously observed, the material on 6 cases indicates irregular menstrual cycles before the time of pregnancy as the most frequent causative factor. Threatened abortion occurred four times in 6 cases.

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[7] Rutherford, cited by Hertig and Livingstone.[9]

[8] Paine, A. K.: Pathology of Embryo and Abortion, Am. J. Obst. & Gynec. **43**: 245, 1942.

[9] Hertig, A. T., and Livingstone, R. G.: Spontaneous, Threatened and Habitual Abortion: Its Pathogenesis and Treatment, New England J. Med. **230**: 797, 1944.

[10] Beidleman, B.: Mongolism: A Selective Review Including an Analysis of Forty-Two Cases from the Records of the Boston Lying-In Hospital, Am. J. Ment. Deficiency **50**: 35, 1945.

[11] Myers, C. R.: An Application of the Control Group Method to the Problem of the Etiology of Mongolism, Proc. Am. A. Ment. Deficiency **62**: 142, 1938.

[12] Hoskins, R. G.: The Tides of Life, New York, Paul Kegan, Trench, Truebner & Co., 1933.

Worth mentioning is 1 case of multiple mongolism (cases 29 *A* and *B*). This brings the total number of instances of multiple mongolism in the same family to 3, in a series of 385 cases. That this mother's offspring were successively normal, mongoloid, normal and then again mongoloid does not prove the presence of "genetic factors," but makes one wonder whether improved, though not perfect, prenatal conditions may not increase the number of "salvaged abortions," with the possible result of more such multiple instances of mongolism.

There were 3 instances of twin pregnancies in which one twin was a mongoloid child. In 1 instance, the sibling was dead. It is my conviction that these cases do not favor a genetic interpretation of mongolism or shift the weight of evidence toward such an interpretation.

SUMMARY

1. After the publication of two previous studies examining 250 and 75 cases, respectively, the present investigation covers a series of 64 new cases. Six cases were discarded as "without explanation." In 8 to 10 per cent satisfactory data could not be obtained, either because information was withheld or because only a thorough physical examination and clinical study could produce the necessary facts. Fifty cases were divided into four groups according to age. The results are tabulated in tables 2 to 5.

2. In the first age group, the mother was within or near the menopause. In 69 per cent she had not given birth to a child for a long time (seven to sixteen years). Uterine and ovarian dysfunction and previous abortions indicate an impaired generative faculty which developed in a previously healthy woman who, in the majority of cases, had given birth to normal children previously.

3. Mongolism is not a "monstrosity," but the result of a deceleration of the developmental rate during certain weeks of the gestation period (end of organogenetic period, from the sixth to the fourteenth week). The result of such interference with the developmental rate is an immature, "ill finished" child.

4. Potentially, mongolism can be the outcome of any pregnancy, if a constellation of factors occurs which produces a threshold condition of sterility.

5. The most frequent constellation of an abnormal pregnancy response is produced by advanced age. Of the women having a mongoloid child after 41 years of age, 53.9 per cent showed actual menopausal symptoms. Age produces a physiologically changed ovarian activity and uterine responsiveness. It is suggested that such a constellation facilitates the slowing down of fetal development due to abnormal nutrition.

6. Since 45 per cent of the instances of mongolism, however, occur in a maternal age group below 40 years of age, who are well fitted for procreation, age alone cannot be the decisive factor.

7. Analysis of 21 instances in a maternal age group of 31 to 40 and of 13 instances in a maternal age group of 21 to 30 shows that certain constellations of factors may be expected to operate in all women who give birth to a mongoloid child in their twenties and thirties. The most significant symptoms are: inability to become pregnant, impaired hormonal regulation, bleedings during pregnancy, menstrual irregularities, previous abortions and uterine and ovarian anomalies. These symptoms are the result either of local conditions in ovary and uterus or of an endocrine inadequacy of the corpus luteum. Thyroid anomalies are so frequently seen that they are an important link in the chain of events. The common denominator is a threshold condition of sterility.

8. The material includes 1 case of mongoloid children in two generations, 1 of multiple mongolism and 3 cases of twin pregnancies, resulting in one mongoloid, the twin being either normal or dead. It is pointed out that this material does not favor a genetic interpretation. It is, however, possible that thyroid deficiencies on either a geographic or a genetic basis are significant.

9. Mongolism, occurring about 3 times in every thousand births, is a condition which deserves more medical attention. As it is a "decelerating" growth deficiency in the prenatal period, still manifest in infancy, therapy has to concentrate on factors which may increase the developmental rate of the newborn. Although no definite cure is available, effective experimental treatment aiming at an increase of the growth rate (physical and mental) must start as early as possible.

10. The main problem of mongolism is its prevention. With increased knowledge of those prenatal factors operating during gestation and resulting in malformations or deficient growth rates, careful observations must be collected with regard to all circumstances which may condition abnormal fetal growth. The present study offers new evidence that mongolism is due to an abnormal maternal condition during the early part of gestation. It offers some clues as to the nature of the anomalies and postulates further investigations as to their specific mode of action.

THE DIAGNOSIS OF COARCTATION OF THE AORTA

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One of the most important advances in surgery in recent years has been the development of technics for the cure of certain forms of cardiovascular disease. A new addition in this field is a procedure for treatment of coarctation of the aorta of the adult type. In this anomaly a short segment of the aorta in the region of the ligamentum arteriosum is constricted and the lumen of the vessel reduced, usually to a diameter of 6 mm. or less. The circulation to the portion of the body below the level of stenosis is maintained by anastomoses between branches of the subclavian and axillary arteries and the intercostal arteries which arise from the aorta below the site of constriction.

In the past, recognition of coarctation of the aorta was of academic interest only, but because a form of surgical treatment is now available, its detection has become a matter of practical importance. Diagnosis is not difficult in most cases, but in order to avoid errors it is necessary to include a few simple procedures in every physical examination and regularly to note certain features when interpreting roentgenograms of the thorax.

From the Cleveland Clinic and the Frank E. Bunts Educational Institute.

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Although an occasional patient with coarctation of the aorta lives to an advanced age, Reifenstein, Levine and Gross [1] found in a recent study of 104 autopsied patients that 61 per cent of them died before or during their fortieth year. The commonest causes of death were rupture of the aorta, congestive heart failure, intracranial hemorrhage and bacterial endocarditis or aortitis. The first three of these conditions occur because the arterial pressure is almost always elevated in the arms in coarctation and, consequently, in the cerebral vessels and ascending aorta. In children and adolescents, a successful operation results in correction of the hypertension in the upper part of the body and, therefore, can be expected to bring about a decided improvement in the life expectancy of these patients. In older persons, some residual elevation in blood pressure may remain after operation. For this reason, and because the diminished elasticity of the aorta in patients over 20 years of age may add considerably to the difficulty of the surgical procedure or even make correction impossible, it is important that the diagnosis of coarctation be made as early in life as possible.

Summary of Observations on Patients with Coarctation of the Aorta

Sex	Age, Yr.	Blood Pressure, Mm. Hg		Collateral Vessels Visible or Palpable	Scalloping of Ribs	Enlargement of Heart	Aortic Knob Diminished or Absent	Dilatation of Ascending Aorta
		Arm	Leg					
M	20	160/ 90	132/ 94	..	+	+	+	0
M	24	190/110	130/104	..	+	+	+	0
M	23	202/104	None	+	+	+	+	0
M	8	146/100	None	..	0	+	+	+
M	15	190/120	105/ 95	+	+	+	+	0
M	21	230/ 80	None	+	+	0	+	+
M	33	152/ 90	120/110	+	+	+	+	0
M	19	180/108	None	+	+	+	+	0
M	22	160/ 78	....	..	+	0	+	0
M	26	185/110	....	+	+	+	+	0
M	25	184/124	None	..	+	0	0	0
M	16	183/ 80	....	..	+	0	+	0
M	18	158/100	....	..	+	+	+	0
M	28	190/134	....	..	+	0	0	+
F	30	172/ 90	....	..	+	+	+	+
F	23	175/ 80	None	..	+	0	+	0
M	9	168/112	....	..	0	0	+	0
F	29	166/ 60	....	..	+	+	+	0
M	13	165/120	None	..	0	0	+	0
M	20	186/120	None	+	+	0	+	+
M	25	168/ 92	None	..	+	+	+	+
M	34	158/ 98	None	+	+	0	+	+
F	24	186/110	102/ 90	+	+	+	+	0
M	22	190/ 84	122/100	+	+	0	+	+

MATERIAL AND OBSERVATIONS

A series of 24 consecutive patients with coarctation of the aorta of the adult type has been reviewed, with particular reference to those findings on physical examination and in the roentgenograms of the thorax which are of diagnostic value (table). The age of the patients ranged from 8 to 41 years. Twenty were males, and 4 were females. Eighteen of the 24 were referred to the clinic because hypertension had been discovered during an earlier examination. Three others were aware of elevated blood pressure but were not admitted to the clinic for this reason. In only 2 persons had the diagnosis of coarctation of the aorta been made previously.

Symptoms.—The symptoms reported by the patients were of little diagnostic help except in a few instances in which they indicated the presence of some form of cardiovascular disturbance. Twelve persons had experienced headache, but in none was this the chief complaint. Seven had had epistaxis, but in only 1 had this been troublesome. One had bled excessively after tonsillectomy and again after a tooth extraction. Palpitation had been noted by 8 patients, and 5 had experienced dyspnea on moderate or severe exertion. Attacks of angina pectoris had occurred in 2, one a woman, aged 29, and the other a man, aged 34. The latter patient also had suffered from acute myocardial infarction one week before he was first seen. Symptoms of circulatory insufficiency in the legs were not common. Only 1 patient complained of typical intermittent claudication, but 1 other reported easy fatigue of the legs and occasional mild cramplike pain, and a third had noted frequent numbness in the lower legs.

Observations on Blood Pressure and Femoral Arterial Pulsations.—The two most important diagnostic features of coarctation of the aorta are the presence of hypertension in the arms in association with a much lower systolic blood pressure in the lower extremities and diminution and retardation of the pulsations in the femoral arteries. The hypertension in the arms may be of a mild degree, especially in children and young adults, and in exceptional instances [2] the brachial blood pressure is within normal limits. The systolic pressure is always lower in the legs than in the upper extremities, and the pulsations in the femoral arteries, if present, are invariably delayed and diminished. The reduction in the femoral pulse and systolic pressure in the legs is the result of the increased resistance offered to the flow of blood by the narrowed aorta and the circuitous anastomotic pathways. The hypertension in the upper extremities probably is due principally to the same cause, although it has been suggested that diminution in renal blood flow also is a responsible factor.[3] Blumgart, Lawrence and Ernstene [4] reported the arteriolar pressure, as measured by the histamine flare method, to be approximately normal in their 2 patients with coarctation. This observation is consistent with the hypothesis that the hypertension in the arms is more directly related to the resistance offered by the stenosed aorta and the collateral pathways than to any mechanism which would manifest itself by increased arteriolar tone.

Although the systolic arterial pressure is always higher in the arms than in the lower extremities in coarctation of the aorta, the diastolic pressure in the legs seldom is reduced correspondingly. As a result, diastolic hypertension in the lower extremities is a frequent occurrence. The elevation in diastolic pressure may be due to diminished amplitude of the pulse wave secondary to the damping effect of the constricted segment of the aorta and the collateral channels, as pointed out by Hull.[5]

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[1] Reifenstein, G. H.; Levine, S. A., and Gross, R. E.: Coarctation of the Aorta: A Review of One Hundred and Four Autopsied Cases of the Adult Type, Two Years of Age or Older, Am. Heart J. **33:** 146-168 (Feb.) 1947.

[2] King, J. T.: The Blood Pressure in Stenosis at the Isthmus (Coarctation) of the Aorta: Case Reports, Ann. Int. Med. **10:** 1802-1827 (June) 1937.

[3] Steele, J. M., and Cohn, A. E.: The Nature of Hypertension in Coarctation of the Aorta, J. Clin. Investigation **17:** 514 (July) 1938. Friedman, M.; Selzer, A., and Rosenblum, H.: The Renal Blood Flow in Coarctation of the Aorta, ibid. **20:** 107-111 (March) 1941.

[4] Blumgart, H. L.; Lawrence, J. S., and Ernstene, A. C.: The Dynamics of the Circulation in Coarctation (Stenosis of the Isthmus) of the Aorta of the Adult Type, Arch. Int. Med. **47:** 806-823 (May) 1931.

[5] Hull, E.: On the Evidence for Generalized Arteriolar Constriction in Coarctation of the Aorta, Am. Heart J. **35:** 980-983 (June) 1948.

In all but 4 of the 24 patients in the present series, the systolic arterial pressure in the arms was 160 mm. of mercury or higher. The lowest systolic brachial blood pressure recorded was 146 mm. of mercury. The diastolic pressure in the arms was 100 mm. or more in 13 patients and less than 90 mm. in 6. In 4 persons there was a significant difference in the pressure in the arms; that in the left arm was lower in each instance. Evidence from necropsies and from observations at the time of operation indicates that such inequalities in the brachial blood pressures usually are the results of involvement of the origin of the left subclavian artery in the area of coarctation. In all patients in the present series the femoral arterial pulsations were diminished or absent, and the systolic blood pressure in the lower extremities, when obtained, was lower than in the arms.

The presence of coarctation of the aorta is often overlooked, but this error can be avoided if the physician palpates the femoral arteries in every patient in whom the brachial blood pressure is elevated or in whom a difference is present in the volume of the radial pulse in the two arms. Therefore, it is recommended that palpation of the femoral arteries be made a routine part of every physical examination.

Evidence of Collateral Circulation.—The collateral channels through which the circulation to the lower portion of the body is maintained in coarctation of the aorta make themselves apparent by roentgenologic evidence of erosion of the costal grooves of the ribs (fig. 1) and frequently also by the presence of visible or palpable pulsating vessels over the back and in the axillas. Similar vessels are observed occasionally over the epigastrium and lower anterior portion of the thorax. These features are of great value in corroborating the diagnosis, but they vary considerably in prominence, depending on the age of the patient and the degree to which the aorta is stenosed. The changes are seldom observed before the early years of adolescence.

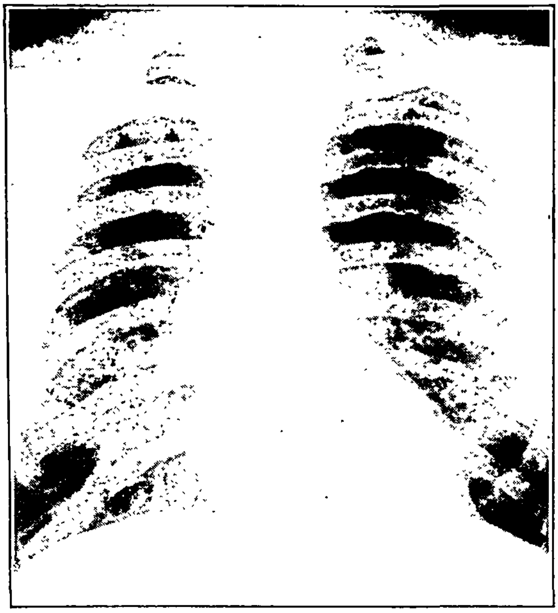

Fig. 1.—Roentgenogram of the thorax illustrating scalloping of the ribs in coarctation of the aorta. The aortic knob is absent, and there is widening of the upper mediastinal shadow to the left, probably due to dilatation of the left subclavian artery.

Visible or palpable vessels were present over the back in 10 of the 24 patients whose symptoms are summarized in this report.

At times in the past, the roentgenologist, by appreciating the significance of the erosion or scalloping of the ribs, has been the first to recognize the presence of coarctation of the aorta. Careful inspection for this feature should be a part of the interpretation of every roentgenogram of the thorax. It should also be emphasized that it is the costal groove, and not the inferior margin of the ribs, which is eroded by the dilated, tortuous intercostal arteries taking part in the collateral circulation (fig. 2).

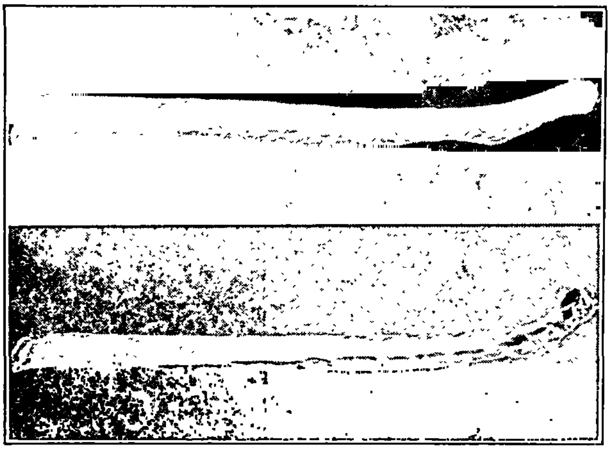

Fig. 2.—Rib from patient with coarctation of the aorta. The scalloping seen in roentgenograms is due to irregular erosion of the costal groove. Upper, roentgenogram; lower, photograph.

Scalloping of the ribs was observed in the roentgenograms of 21 of the 24 patients in the present series. The oldest of the 3 patients in whom the ribs were normal was 13 years of age. The changes, when present, involved one or several ribs from the third to the tenth, inclusive. The second rib was affected in 1 patient, but the first, eleventh and twelfth ribs always appeared normal. The second and eleventh ribs have only a shallow costal groove, and the first and twelfth ribs have none. In 7 patients scalloping was severer on the right side than on the left, and in 3 it was more extensive on the left than on the right.

In many of the patients in whom there was erosion of the ribs, a long, narrow line of distinctly increased density was observed near the inferior margin. In addition to being present in ribs that showed scalloping, the change was also noted at times in ribs that otherwise appeared normal. The reason for the occurrence of this line is not known, but it may possibly be due to eburnation of the bone as a reaction to increased pressure from the dilated, tortuous intercostal arteries. No earlier reference to this feature has been found in the literature.

Roentgenologic Examination of the Heart and Aorta.—Certain other roentgenologic changes are commonly present in coarctation of the aorta, but they do not have the pathognomonic significance possessed by erosion of the costal grooves. The most constant of these are absence or great diminution in the size of the aortic knob in the posteroanterior view (fig. 1) and unusual clearness of the aortic window in the left anterior-oblique position (fig. 3). The heart may or may no be enlarged. The ascending aorta often is dilated, an this change in association with absence of the aortic knob always should suggest the possibility of coarctation. There may be widening of the upper mediastinal shadow to the left due to dilatation of the left subclavian artery.

Of the 24 patients included in this report, cardiac enlargement was present in 13, the ascending aorta was dilated in 8 and the aortic knob was absent or very small in 22.

Cardiac Murmurs.—Auscultation of the heart in patients who have coarctation of the aorta frequently reveals the presence of murmurs. The commonest of these is a systolic murmur over the aortic area. A similar murmur often is easily heard in the interscapular area. A diastolic murmur due to aortic insufficiency is an infrequent finding, and an occasional patient may present a "machinery type" murmur in the left second intercostal space indicative of patency of the ductus arteriosus.

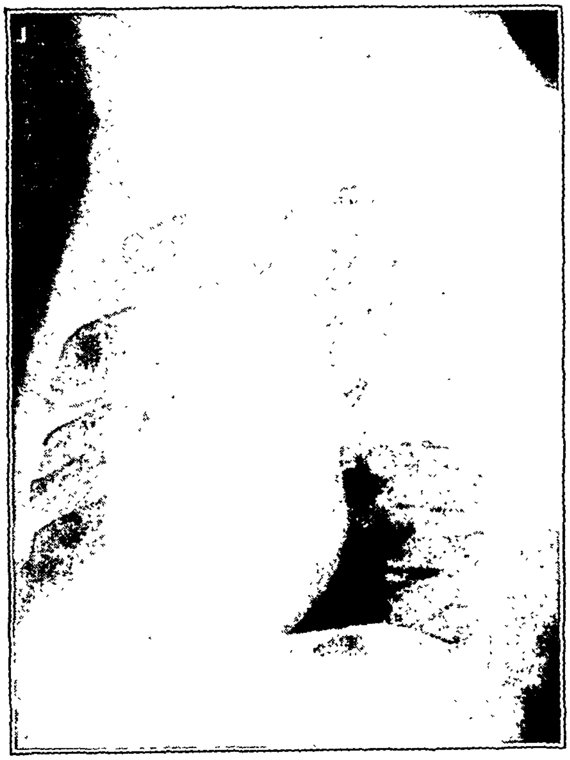

Fig. 3.—Roentgenogram of the thorax. Left anterior-oblique view demonstrating unusual clearness of the aortic window.

A systolic murmur was present over the base of the heart in 21 of the 24 patients in the present series. In 2 of these and in 1 other person there was a diastolic murmur of aortic insufficiency. None presented auscultatory evidence of patent ductus arteriosus. Two patients had no murmurs of any kind.

The Electrocardiogram.—Although the electrocardiogram may be abnormal in patients who have coarctation of the aorta, the changes are of no diagnostic value.

SUMMARY

A series of 24 patients with coarctation of the aorta of the adult type is reviewed.

The development of surgical technics for the correction of this anomaly has made it a matter of practical importance that the presence of the condition be recognized as early in life as possible.

The most constant diagnostic sign of coarctation of the aorta consists of diminished or absent pulsations in the femoral arteries. Hypertension is almost always present in the upper extremities, and the systolic blood pressure is always lower in the legs than in the arms. The radial pulses are at times unequal in the two arms. Visible or palpable pulsating vessels often are present over the back and in the axillas. Roentgenologic examination of the thorax usually reveals evidence of erosion of the costal grooves and a line of increased density near the inferior margin of the ribs. The aortic knob is generally absent or greatly diminished, and the ascending aorta often is dilated. In roentgenograms made in the left anterior-oblique position, the aortic window is unusually clear.

The presence of coarctation of the aorta frequently is overlooked, but this error can be avoided by palpating the femoral arteries in the course of every physical examination and by careful inspection of every roentgenogram of the thorax for the various changes mentioned.

ABSTRACT OF DISCUSSION

Dr. O. T. Clagett, Rochester, Minn.: Now that an effective surgical treatment for some cases of coarctation has been developed, it becomes an important responsibility of all physicians to be alert to the diagnosis of this condition. Coarctation of the aorta is not as rare as it is generally believed to be. A conservative estimate would indicate there are at least 35,000 persons in the United States who have this condition. The diagnosis of coarctation is not difficult. A blood pressure manometer, a stethoscope and a careful physical examination are all that are necessary. It can be confirmed in most patients by the roentgenologic signs noted by Dr. Proudfit. The intraluminal measurement of blood pressure in the radial and femoral arteries and the recording of the pulse waves have proved in our experience a most valuable method of studying coarctation and have provided a means of measuring accurately the changes in circulation and blood pressure that have resulted from operation. This examination is carried out by inserting needles connected to electronic strain gages directly into the radial and femoral arteries and simultaneously recording the pressures and pulse waves in these vessels. We believe this method is an easier, safer and more valuable test than angiocardiography. In my opinion, the operation should usually not be done before 10 years of age, and it may be best delayed until the patient is 15 to 16 years of age and has attained most of his growth. Patients over 20 years of age are not as suitable for operation as younger patients because extensive and permanent cardiovascular damage may have developed. However, we have performed operations with excellent results in patients beyond 30 years of age. We have not felt that age itself is a contraindication. However, operation should not be attempted in patients in whom signs of cardiac failure have developed, in patients in whom aneurysms of the great vessels can be demonstrated or in those who have had cerebrovascular accidents. Patients who have been operated on for coarctation have not been followed for a long enough time to permit an accurate evaluation of the results of operation. The early results in those in whom a satisfactory anastomosis could be accomplished are encouraging, however. The operation for coarctation is a formidable one, not to be undertaken by a surgeon without considerable experience in vascular surgery. The surgical mortality has ranged from 12 to 20 per cent in reported series thus far. However, as Dr. Proudfit pointed out, more than 60 per cent of patients with coarctation die before their fortieth year if not operated on, and, in view of this poor prognosis, the surgical risk is justifiable. Results from operation will improve with more experience and better technic. The greatest opportunity for improvement, however, lies in earlier diagnosis of this condition, so that operation can be performed at an opportune time before extensive cardiovascular damage has resulted. Early diagnosis requires a blood pressure determination as part of every routine physical examination, and a consideration of the possibility of coarctation in every patient who has an elevated blood pressure. Diminished or absent pulsation in the abdominal aorta and femoral vessels in the presence of an elevated blood pressure in the arms indicates coarctation. It is particularly to be urged that these examinations be carried out in children and young adults so that the diagnosis of coarctation can be made before irreparable cardiovascular damage has developed as a result.

Dr. Proudfit: I should like to reemphasize that coarctation in the vast majority of patients can be diagnosed accurately by the simple means which are at hand in ordinary physical examination, although the diagnosis may be established somewhat more securely by pressure records.

THERAPEUTIC POSSIBILITIES OF MICROWAVES

Experimental and Clinical Investigation

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In spite of the fact that radar is considered as one of the outstanding developments of World War II, its principles are not new. Radar operates on the principle of sending out extremely short pulses of high frequency energy and measuring the time interval required for this burst of energy to reach its destination and be reflected back to its source. By knowing the length of time required for the energy to travel back and forth, distance to the object can be accurately measured.

The magnetron is essentially a device which can be pulsed rapidly for intervals of the order of microseconds and is capable of delivering hundreds, thousands or millions of watts of power at wavelengths in the centimeter range or shorter. During the war the magnetron and other microwave tubes have been used almost solely for detection and direction applications. For these applications a pulse-echo system is employed. As soon as the war was over, investigation of the therapeutic possibilities and other applications of continuously produced microwaves was inaugurated.

For many years radiations of very high frequency have been used in medicine and surgery for heating tissues. Since 1890, when d'Arsonval[1] demonstrated that high frequency electrical currents of 10,000 cycles per second caused no muscular contractions, but produced heating of tissues when they were passed through the human body, physicians have been employing increasingly higher frequencies for heating living tissues. In this communication we are reporting on the experimental and clinical application of high frequency radiations at a frequency of 2,450 megacycles per second at a wavelength of approximately 12 cm. These microwaves have optical properties and can be reflected, refracted and diffracted. They can be selectively absorbed. The absorption factor of water at 100 F. for microwaves[2] having a frequency of 2,450 megacycles per second is approximately 7,000 times that for radio waves having a frequency of 27 megacycles per second. The latter is that commonly used in the so-called short wave diathermy.

Up to the present time the reports[3] in the literature have been few regarding the effects of microwaves on the living organism. These were conducted by the armed forces to dispel fears of possible ill effects of radar radiations on personnel connected with radar work. The reports are concerned only with exposure to radar pulses, which are brief, rapid bursts of energy, and not with exposure to continuous microwave energy. Follis[3b] showed that very short bursts of energy at the high frequencies used in connection with radar work had no ill effects on guinea pigs. The biologic effects of microwaves are under investigation. Up to the present the general impression has been that if the output of microwaves is properly controlled and directed no ill effects will result.

EQUIPMENT USED

The equipment which was used in our studies consisted of a small portable microwave diathermy machine containing an air-cooled magnetron tube. The energy is transported by a coaxial cable from the generator to the director. The energy is radiated onto the body from the director. There are several types and sizes of directors. The one used in this study was a small hemispherical director, the diameter of which was 3½ inches (9 cm.).

In preparation for using the microwave machine, the filament current is first turned on; then, after a time delay, the plate current is turned on. The plate current is controlled by a variac® and is read on the meter in milliamperes or in percentage output. The output in watts has been calculated for these machines. In our studies variable outputs at different distances for various durations were used in order to determine effective and safe dosage and distance and repeatable procedures. The measurement of local temperatures of the tissues was made by the use of thermocouples before, and after, exposure to microwave radiations. Up to date, it has not been possible to measure the temperature reliably during exposure to microwaves. The hemispherical director used in this study does not have a uniform pattern of heating. Greater heating is produced toward the periphery than in the central area of exposure. Our measurements were confined to the area where heating is considered maximal; that is, near the periphery of the director. The studies were made in the extremities, where good muscles and relatively even surfaces are available.

Carefully applied technic produces repeatable results. This can be done by marking the exact spots where thermocouple needles were inserted. The depth is controlled by marking the shaft of the thermocouple needles so that they can be inserted to the desired level. The temperatures were taken in the same area of the heating pattern. After a satisfactory control period, the thermocouples were removed and the microwaves were turned on, with special care as to accurate spacing of the director and exact output. At the

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From the Section on Physiology (Dr. Wakim) and the Section on Physical Medicine (Drs. Martin and Krusen), Mayo Clinic, and the Division of Experimental Medicine, Mayo Foundation (Dr. Herrick).

[1] d'Arsonval, cited by Bierman, W.: The Medical Applications of the Short Wave Current, Including a Discussion of Its Physical and Technical Aspects, Baltimore, William Wood & Company, 1938. Halphen, A., and Auclair, J.: A New Form of d'Arsonvalization—the Short Waves, Arch. Phys. Therapy **14:** 69-71 (Feb.) 1933.

[2] Argento, H. F.: Centimeter-Wave Magnetrons, the Tubes That Made Microwave Radar Possible, Q. S. T. **29:** 17-21 (Dec.) 1945.

[3] (*a*) Burn, J. H.: On Vaso-Dilator Fibres in the Sympathetic, and on the Eff [illegible] line in Augmenting the Vascular Response t[illegible] J. Physiol. **75:** 144-160 (June) 1932. (*b*) [illegible] s on the Biological Effect of High Frequency [illegible] J. Physiol. **147:** 281-283 (Oct.) 1946. (*c*) Lidman, B. I., and Cohn, C.: Effect of Radar Emanations on the Hematopoietic System, Air Surgeons' Bull. **2:** 448-449 (Dec.) 1945.

termination of the heating period the thermocouples were reinserted in the same area and the first readings were taken after the thermocouples had time to come into equilibrium. This usually occurred within one minute after discontinuation of the heating with microwaves. The galvanometer deflections were either read on a calibrated scale or photographed. The cutaneous temperature was taken by means of contact thermocouples and in some cases by thermistors. The subcutaneous and muscle temperatures were recorded by needle thermocouples inserted into the specified region.

STUDIES ON ANIMALS

In collaboration with Leden [4] we demonstrated without doubt that microwaves can heat tissues. In fact, by the use of sufficient output, temperatures can be raised to a fairly high level. With a 75 milliampere plate current and the director at a distance of 5 cm., the rise in cutaneous temperature was usually between 3 and 5 C. after twenty minutes. In several experiments the rise of muscle temperature was greater than that of the skin. It must be kept in mind that the control temperatures of the deeper tissues are higher than that of the skin, so that even with similar rises in all tissue layers the final temperature of the muscle at a depth of 1.5 cm. is greater than that of the subcutaneous tissue or the skin. (This is not true for deeper layers of muscle.)

Table 1.—*The Influence of Exposure of the Thigh to Microwaves* on the Flow of Blood in the Femoral Vein*

	Blood Flow in Cc. per Minute		
Study Number	Control Before Microwaves	Maximal After Microwaves	Percentage Increase
1	30	48	60
2	23	76	230
3	32	48	50
4	24	48	100
5	23	40	74
6	23	30	30
7	21	51	143
8	20	55	175
9	21	45	114
Average			109

* Plate current 75 milliamperes; hemispherical director (9 cm. diameter) at a distance of 5 cm. from skin.

The rate of cooling of the various tissues was carefully followed and yielded interesting results. In all cases the skin and superficial tissues cooled more rapidly than deeper ones. In the trained animals cooling was complete and rapid. Within thirty minutes after the microwave machine had been turned off, the temperatures returned to control values. In the anesthetized animals on which surgical procedures were performed the cooling was much slower.

The blood flow studies were made on the animals by the use of a bubble flowmeter which was a modification of Dumke and Schmidt's.[5] Continuity between the cannulas, introduced into the proximal and distal ends of the sectioned vessel, and the flowmeter was established by short rubber tubing. The flowmeter was calibrated so that a record of the time necessary for the bubble to flow from marker to marker measured the rate of blood flow. Definite increase in blood flow occurred as a result of heating produced by exposure to microwaves. Table 1 gives the data on the individual experiments on blood flow. It shows that an average increase of 109 per cent in blood flow through the femoral vein resulted from heating the thigh with microwaves.

After we had found, in collaboration with Leden, that exposure of normal trained or anesthetized dogs to microwaves produced an increase in the blood flow in the exposed extremity accompanying an increase in cutaneous, subcutaneous and muscle temperatures, we tried to determine the effects of microwaves on ischemic tissues in anesthetized dogs. In collaboration with Worden,[6] we sought experimental evidence to help answer the question: Does ischemia of tissues contraindicate irradiation with microwaves? Ischemia of the lower extremities was produced in the anesthetized dog by a clamp placed over the abdominal aorta close to its bifurcation into the common iliac arteries. From this study we learned that when ischemic tissue was irradiated for durations of five and ten minutes there was no difference in heating effects as compared with normal tissues. However, after fifteen or twenty minutes of irradiation, serious damage to the ischemic tissues occurred even though the rises of temperature were not appreciably higher than those of normal tissues. It was also observed that in practically every experiment when the duration of irradiation was fifteen or twenty minutes burning of the ischemic tissues took place. When such burns occurred, they appeared over bony prominences first. Because of the fact that microwaves are efficiently absorbed by water, it was repeatedly observed that whenever blebs or pockets of fluid occurred in the area exposed to microwaves their temperature was much more elevated than that of the rest of the heated tissues. Microwaves heat edematous tissues much more than normal tissues. The data obtained from these experiments justified the conclusions (1) that by placing the hemispherical director 2.5 cm. from the skin and using a power output of 30 watts, the elevations in temperature were highest after twenty minutes of irradiation, and (2) that ischemic tissues, bony prominences and areas of localized accumulation of fluid should be irradiated with caution.

STUDIES ON HUMAN SUBJECTS

Having been convinced that definite heating of tissues in trained and in anesthetized laboratory animals could be easily produced by exposure of various regions of the body to microwaves, we undertook cautiously the investigation of the effect of microwaves on man.

In collaboration with Gersten,[7] we determined the effect of various outputs of microwaves and of different periods of exposure to microwave diathermy, on the peripheral circulation and on the temperature of tissues in the exposed area. We were especially interested in determining the optimal effects on the peripheral circulation and on the temperatures of the irradiated areas in man.

About three hundred observations were made on more than 50 normal human subjects. The duration of exposure to microwaves varied from five to thirty minutes, and the output was 80 or 60 watts. The study included the blood flow and the cutaneous, subcutaneous and muscle temperatures of the area exposed to microwaves. The studies of blood flow were made on the heated and on the contralateral extremity by the use of the venous occlusion plethysmograph [8] with a compensating spirometer recorder. In the experiments in which the blood flow was studied the cutaneous temperatures of both the heated and the contralateral extremity were taken by means of a thermistor. The studies on tissue temperature of the exposed extremity were made by means of copper-constantan thermocouples. The cutaneous thermocouple was slightly weighted and placed in contact with the skin. The subcutaneous thermocouple was 1.9 cm. long and was inserted so that the entire shaft lay beneath the skin with its recording tip close to the shaft of the muscle thermocouple. The muscle thermocouple was inserted vertically to a depth of 1.5 cm.

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[4] Leden, U. M.; Herrick, J. F.; Wakim, K. G., and Krusen, F. H.: Preliminary Studies on the Heating and Circulatory Effects of Micro-Waves—"Radar," Brit. J. Phys. Med. **10:** 177-184 (Nov.-Dec.) 1947.

[5] Soskin, S.; Priest, W. S., and Schutz, W. J.: The Influence of Epinephrin upon the Exchange of Sugar Between Blood and Muscle, Am. J. Physiol. **108:** 107-117 (April) 1934. Dumke, P. R., and Schmidt, C. F.: Quantitative Measurements of Cerebral Blood Flow in Macacque Monkey, ibid. **138:** 421-431 (Feb.) 1943.

[6] Worden, R. E., and others: Unpublished data.

[7] Gersten, J. W., and others: Unpublished data.

[8] Berry, M. R.; Baldes, E. J.; Essex, H. E., and Wakim, K. G.: A Compensating Plethysmokymograph for Measuring Blood Flow in Human Extremities, J. Lab. & Clin. Med. **33:** 101-117 (Jan.) 1948.

The source of the high frequency radiations to which the forearm was exposed was similar to the air-cooled multicavity magnetron that was used in the studies on animals. The distance of the hemispherical director from the area of the exposed skin was 5 cm. in all the observations.

Control readings of peripheral blood flow or temperatures or both were established after the subject had been lying quietly on the test bed for at least half an hour in a room the temperature of which did not vary during the observations. The microwaves were applied to the volar surface of the forearm with the proximal margin of the hemispherical director approximately 8 cm. from the elbow. The blood flow readings were again taken five minutes after the end of the period of treatment with microwaves. In some studies additional determinations of blood flow were taken ten minutes after exposure to microwaves.

TABLE 2.—*Effect of Microwaves on the Blood Flow in the Heated Extremity*

Number of Studies	Duration of Heating, Minutes	Dosage, Watts	Flow Before Heating, Cc. per 100 Cc.	Flow After Heating, Cc. per 100 Cc.	Percentage Increase
20	5	80	9.16	9.94	8
20	10	80	9.10	10.30	13
9	15	80	7.76	9.42	21
20	20	80	6.90	10.20	48
26*	20	80	7.45	10.43	40
10	30	80	6.93	11.45	65
10	15	60	8.27	10.76	30
13	20	60	6.58	8.12	23
12	30	60	6.84	8.71	27

* Blood flow readings in this group of studies were taken on an average of 6.8 minutes after cessation of heating.

The cutaneous temperatures in the subjects on whom studies of blood flow were made were taken on the exposed extremity immediately after treatment with microwaves and again after one minute. The cutaneous temperature of the unexposed extremity was taken one minute after the microwaves were turned off. The temperature studies after the exposure to microwaves were taken one minute after the period of heating by means of thermocouples. Additional temperature readings were taken every minute for five minutes, and in a few experiments the temperature determinations were continued for forty minutes with readings taken at five minute intervals. In a number of observations, oral temperatures and heart rate were determined before and after exposure to microwaves.

The data on blood flow are given in table 2. In each group of studies the average blood flow in cubic centimeters per minute per hundred cubic centimeters of tissue in the heated forearm is given and the average percentage increase in blood flow is shown. When the output of the microwave machine was set at 80 watts and the distance of the director was fixed at 5 cm. from the heated area of the forearm, the average percentage increase in blood flow as a result of heating was greater with longer durations of exposure to microwaves; namely, after five minutes of heating the blood flow increased 8 per cent, after ten minutes it increased 13 per cent, after fifteen minutes 21 per cent, after twenty minutes 48 per cent and after thirty minutes 65 per cent.

TABLE 3.—*Effect of Microwaves on the Blood Flow in the Unheated Extremity*

Number of Studies	Duration of Heating, Minutes	Dosage, Watts	Flow Before Heating, Cc. per 100 Cc.	Flow After Heating, Cc. per 100 Cc.	Percentage Change
20	5	80	9.87	9.65	— 2
20	10	80	9.10	8.60	— 5
9	15	80	7.76	6.96	—10
20	20	80	7.60	8.00	5
26*	20	80	8.20	7.30	—11
10	30	80	7.24	7.79	8
10	15	60	8.05	8.29	3
12	20	60	7.06	6.05	—14
12	30	60	6.79	7.03	4

* Blood flow readings in this group of studies were taken on an average of 6.8 minutes after cessation of heating.

We found that exposure of the forearm of normal human beings to microwaves at an output of 80 watts produced a sigmoid (S-like) relation between increase in blood flow and the duration of irradiation. After fifteen minutes of heating the increase in blood flow was approximately the same for 60 and 80 watt outputs. With longer periods of heating the 80 watt output produced significantly greater increases in blood flow than the 60 watt output.

Table 3 gives the corresponding data on the blood flow in the unheated contralateral extremity. It is clearly shown that the changes in blood flow in the unheated extremity are variable and insignificant.

Table 4 gives the temperature rises in degrees centigrade of the skin, subcutaneous tissues and muscles, as a result of exposure of the forearm to microwaves for the given duration and output. The elevation of the temperature of the skin, subcutaneous tissues and muscles in the area exposed to microwaves was significant, even when the duration of exposure was only five minutes. For the various durations of exposure to microwaves, the average rise in temperature was greatest in the muscles.

TABLE 4.—*Effect of Microwaves on Temperature of Skin, Subcutaneous Tissue and Muscle*

Number of Studies	Duration of Heating, Minutes	Dosage, Watts	Rise in Temperature (C.) After Heating		
			Skin	Subcutaneous	Muscle
26	5	80	4.5	5.2	5.5
25	10	80	4.8	5.7	6.1
10	15	80	4.8	5.5	6.7
25	20	80	4.7	5.8	6.7
10	30	80	2.9	3.4	4.3
10	15	60	4.1	4.8	6.2
10	20	60	5.0	5.4	6.6
10	30	60	3.7	4.0	5.4

A significant finding was noted in this study. A progressive increase in tissue temperature occurred when the periods of exposure to microwaves were increased from five to fifteen minutes. Between fifteen and twenty minute periods of exposure there was no difference in the rises in tissue temperature. However, when the period of exposure to microwaves was prolonged to thirty minutes, the rise in temperature of the skin, subcutaneous tissues and muscle was significantly less than for the fifteen to twenty minute exposures.

There was no change in oral temperature or in heart rate, and no ill effects from exposure to microwaves at an output up to 80 watts and for periods up to thirty minutes.

CLINICAL APPLICATION OF MICROWAVES

Our clinical experience with microwave energy as a source of therapeutic heat is still limited. Up to date 70 patients have received a total of approximately 670 microwave applications. The average number of treatments per patient is 9. Maximal duration of one treatment was thirty minutes. The majority of patients have had acute subdeltoid or subacromial bursitis or chronic periarthritis of the shoulder with varying degrees of pain and limitation of motion. Eight patients have had microwaves applied for the following conditions: 4 for acute myositis, 2 for olecranon bursitis, 1 for arthritis of the temporomandibular joint and 1 for osteoarthritis of the knee. Seven patients with involvement of the shoulder received roentgen therapy previous to or simultaneously with the application of microwaves. In several cases of acute or subacute bursitis, marked relief of pain followed the application of microwaves. Two patients with painful stiff shoulders that had been resistant to previous intensive roentgen therapy, diathermy, massage and exercise, began to show rapid improvement after a shift to applications of microwave radiations. In 4 of the 70 cases the pain was increased by the application of microwave radiation.

Five patients were treated postoperatively after dental extractions, for residual pain and swelling present two to twelve days after operation. One to four treatments of five to ten minutes each were given. Results were excellent, both objectively and subjectively, in all these patients. The swelling subsided early, and full movement of the jaw could be made sooner than usual.

Although the majority of these patients showed fair to excellent subjective and objective improvement, our number of observations is so limited that it is impossible as yet to draw definite conclusions regarding the clinical effectiveness of microwave radiation. However, so far no untoward effects have been noted in any of the cases in which microwaves were used in treatment.

COMMENT

In any discussion of microwaves certain questions arise that should be answered before final conclusions can be drawn: 1. What possible changes other than heating may result from exposure to microwaves? 2. How high may the temperatures of the deep tissues be raised without causing damage to the superficial tissues? 3. Can deep tissues be damaged by microwave heating without the physician's or patient's being aware of destructive action? 4. Is there selective absorption of microwave radiations with resultant differences in heating of various tissues such as bone, the eyes, teeth, moist skin, dry skin, nerve trunks, edematous tissues, hematomas or abscesses? 5. What will be the result of applying microwaves over tissue containing metallic or other foreign objects?

CONCLUSIONS

Microwaves are apparently a safe, convenient and comfortable form of heating for local application to tissues. In both dogs and normal human beings microwave radiations will increase the circulation through the irradiated area. Microwave directors are not as yet available for heating very large areas of the body.

Microwaves may be contraindicated or at least should be used with caution over tissues with impaired circulation, over tissues with high fluid content, over regions containing metallic implants and over areas with hemorrhagic tendencies.

Much more careful investigative work must be done with microwave energy before we shall be certain of its rightful place in the field of physical medicine. Although our investigations to date indicate that microwaves have considerable promise, clinically they should be used with caution and reservations.

ABSTRACT OF DISCUSSION

Dr. Harold Dinken, Denver: Dr. Wakim, would you care to make comment on the comparative efficiency of short wave induction and microwaves as far as for deep heating of the periosteum? As for the work with thermocouples, it would indicate that you could heat to 160 F. Can you get that high with microwaves?

Dr. K. G. Wakim, Rochester, Minn.: Our investigations so far on that phase—i. e., comparative efficiency of short waves and microwaves—are not sufficient to qualify me to give a definite answer to your question.

Dr. Dinken: In the presence of foreign bodies of a metallike nature, is there any effect from the microwaves differing from that of the short wave?

Dr. Wakim: In the presence of metallic foreign bodies in the field of irradiation with microwaves, there is the possibility that the metal may act as antenna and concentrate microwave energy. I would not be surprised if burns result in such areas of concentrated heat energy.

Dr. Jerome Weiss, Brooklyn: What distances and power outputs are they using in the initial clinical studies?

Dr. Wakim: A distance of 5 cm. and a power output of about 60 watts were used in our initial clinical studies. The problem of varying distance and output are under investigation, and as soon as we have sufficient data to convince ourselves of optimal distance and output we will state that. We must accumulate much more data before we can make any definite suggestions.

Dr. Weiss: Are you using the subjective sensation of warmth as the end point or guide to your dosage?

Dr. Wakim: On the patients, yes. We used the same distance and output on ourselves first. Sometimes, I felt much warmer in the beginning than toward the end of a period of exposure. I do not believe that subjective sensations are very reliable. We are looking for objective methods. The use of thermocouples and temperature registration is far superior to subjective sensations, but unfortunately cannot be applied during exposure to microwaves.

Dr. Louis B. Newman, Chicago: Dr. Wakim, you have shown that the temperature of the tissues drops after twenty or thirty minutes, and it seems to continue to drop. What happens after thirty minutes? Is there a still further drop or is there a leveling off in the temperature?

Dr. Wakim: We have not studied that, but I do not believe that there would be much of a dropping in temperature any more because we have not so far been able to increase the circulation above the 80 per cent I stated. After we are sure that microwaves have no other biologic effect than heating, then we will go to long durations and find out what happens to the temperature levels. This is a new device, and it pays to be cautious and conservative in its application and appraisal. I would like to keep my statements within the bounds of our data to date.

Dr. David Kling, Los Angeles: You mentioned treatment of bursitis. In most cases of bursitis there is an effusion. Would you advise physicians who own this apparatus not to use it in bursitis unless they aspirate the fluid first? Would you consider the treatment contraindicated in rheumatoid arthritis with effusions in the joints?

DR. WAKIM: We are not yet ready to give definite opinions on indications and contraindications. The number of patients we treated is small. After we have treated several hundred patients and appraised our findings we might be in a better position to give more definitely the indications and contraindications for microwave diathermy. However, the presence of bony prominences and localized accumulations of fluid should be handled with due care.

DR. LEE: Would you give the difference in pathologic findings of a burn from a microwave as compared to a burn from another source? Is there any difference pathologically under the microscope of the tissues?

DR. WAKIM: I am not qualified to answer that, as I have not studied the difference between burns caused by microwaves and those caused by other means. Dr. Weiss, who made such studies, may be able to tell us.

DR. EMILE BRUNOR, New York: I would like to know whether the presence of the thermocouple will cause a difference in the temperature locally.

DR. WAKIM: No, the mere transient presence of the needle thermocouple in tissues does not cause any difference in the local temperature. The thermocouples were not left in the tissues during exposure to microwaves.

IDIOPATHIC THROMBOCYTOPENIC PURPURA AND MENORRHAGIA MISTAKENLY TREATED FOR LOCAL DISEASE

Report of Four Cases

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That profuse and prolonged bleeding from the uterus may occur in idiopathic thrombocytopenic purpura has long been known. Indeed, menorrhagia may be the earliest manifestation of the disease and on occasion its only symptom. However, excessive menstrual bleeding is all too often considered as being due to purely local causes, with the result that such procedures as dilation and curettage of the cervix and even hysterectomy have been performed. The observation of 4 such cases in the period of a few months, the underlying disease in each instance being idiopathic thrombocytopenic purpura, brought this situation acutely to mind. In 3 of the 4 cases studied, dilation and curettage of the uterus had been performed at least once, and in the fourth case hysterectomy had been done. The simple procedure of studying a blood smear for blood platelets would have revealed the almost complete lack of these cellular elements and thus have prevented the various gynecologic procedures.

REPORT OF CASES

CASE 1.—N. G. W., a 52 year old married woman novelist, was admitted to the Joseph H. Pratt Diagnostic Hospital with the chief complaint of easy bruising, bleeding from the gums and menorrhagia for a period of about four months. Early in the present illness she had noted "bruises" on the legs and arms, apparently unrelated to trauma. Her gums bled easily when she brushed her teeth. Her menses began to increase in duration and quantity of flow and about two months before admission became particularly prolonged. She was informed that she had fibroids of the uterus, requiring immediate hospitalization for operation. In the hospital she was found to be anemic (red blood cell count 2,700,000 and hemoglobin 48 per cent) and was given several transfusions. Despite this, her red cell count fell to 1,700,000 and on one occasion symptoms of shock developed, for which transfusions of plasma and 1,000 cc. of blood were given. Hysterectomy was performed as an emergency measure, and, although the patient improved considerably, there was continued oozing from the vagina and the gums began to bleed spontaneously. Eight transfusions of blood were given without any effect on the bleeding tendency. Shortly thereafter, petechiae were noted on both legs. The possibility of a hemorrhagic disorder was considered, and the patient was referred for diagnosis and further treatment.

There was no family history of a hemorrhagic tendency or any other blood dyscrasia. Five years previously, the patient experienced painful swelling of several joints, including those of the knees, the feet and the fingers, in association with a rash on the bridge of the nose and cheeks. The diagnosis of lupus erythematosus was made, and treatment with weekly injections of gold compound was instituted. However, a cutaneous reaction occurred about three months later, following which treatment with the gold preparation was discontinued. The patient's symptoms disappeared gradually, leaving a slight residual deformity of the hands and wrists.

Physical examination on admission revealed a pale slight asthenic middle-aged woman. The gums were boggy, with evidences of slight bleeding. Many small petechial hemorrhages of the buccal mucosae and palate were present. There was no lymphadenopathy. The liver and spleen were not palpable. There was a healing midline scar of the lower part of the abdomen. Numerous pinpoint petechial hemorrhages and several ecchymoses were present on the lower legs. The fingers of both hands showed spindle-shaped deformities, and the right elbow could not be fully extended.

Blood cell counts revealed red blood cells 3,400,000, hemoglobin 10.0 Gm. (65 per cent) and white blood cells 3,800, with 53 per cent polymorphonuclear leukocytes, 17 per cent lymphocytes, 20 per cent monocytes, 9 per cent eosinophils and 1 per cent basophils. The blood smear showed a complete lack of platelets. A platelet count revealed 13,600 platelets per cubic millimeter (normal count about 500,000 per cubic millimeter), representing for practical purposes essentially no platelets. A sternal puncture revealed a hyperplastic marrow with increased numbers of megakaryocytes, which, however, showed no evidence of platelet production. The result of the tourniquet test was decidedly positive and the bleeding time considerably prolonged. Bleeding was stopped manually at the end of ten minutes. The coagulation time was within normal limits, but there was no clot retraction. The diagnosis of idiopathic thrombocytopenic purpura was made. Following two transfusions, splenectomy was performed. An accessory spleen was found and removed. Postoperatively the patient did well clinically, although a stitch abscess developed. There was a complete cessation of vaginal and gingival bleeding, and no further petechiae or ecchymoses occurred. However, the rise in platelet count was relatively unsatisfactory, never reaching levels above 100,000 per cubic millimeter. At the time of the patient's discharge from the hospital the following blood cell counts were obtained: red blood cells 3,480,000, hemoglobin 11 Gm. (71 per cent), white blood cells 6,200 and platelets 86,240. The bleeding time remained somewhat increased. In the course of the next year, the platelet count rose gradually to almost normal levels. The red cell counts and hemoglobin levels were, however, well maintained.

Comment.—In this case, in which there was severe menstrual bleeding requiring numerous transfusions, hysterectomy was performed on the mistaken assumption that uterine fibroids were the cause of the bleeding. When vaginal bleeding continued after hysterectomy, a hemorrhagic disease was suspected and idiopathic thrombocytopenic purpura found. There was an incomplete result from splenectomy, indicating that a splenic

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abnormality was probably not the only causative factor in the patient's thrombocytopenic purpura. Other factors might include lupus erythematosus (which itself may result in thrombocytopenia), treatment with gold compound and rheumatoid arthritis. It should be noted that, despite the initial relative lack of platelet response, there was complete cessation of bleeding from mucous membranes and into the skin, indicating probably that splenectomy had at first resulted in a vascular rather than a thrombocytopenic effect.

Case 2.—M. E. W., a 20 year old single white girl, was admitted to the Joseph H. Pratt Diagnostic Hospital with the chief complaint of bleeding profusely from the vagina, rectum and gums. The present illness began about thirty-two months before admission, when she consulted a dentist for bleeding of the gums; local therapy was given for about a year. About a year and a half before admission she began to work in an industrial plant where she came in contact with cyanate solution. Six months before admission small spontaneously appearing ecchymoses had been noted. About three months before admission and following a severe fall she noticed extensive ecchymoses of the upper and lower extremities. Several days later she experienced nausea and vomiting and on the following day noticed red blood in the feces. On the following day her expected menstrual period began and was exceedingly profuse and persistent. After several weeks of bleeding she was admitted to her local hospital where dilation and curettage were performed and a vaginal pack inserted. Several transfusions were given and when she left the hospital after eleven days the bleeding had ceased. However vaginal bleeding resumed again and became profuse. The patient was readmitted to her local hospital and given a transfusion and again dilation and curettage were performed and a vaginal pack inserted. The bleeding recurred, however, and the patient was referred for diagnosis and therapy.

The past history was not remarkable, and there was no family history of bleeding tendency or blood dyscrasia.

The physical examination revealed a well developed and well nourished young woman. No petechiae or ecchymoses were present. There was no evidence of bleeding from the mucous membranes. The spleen was palpable 2 to 3 fingerbreadths below the costal margin and slightly tender. The liver was palpable 1 fingerbreadth below the right costal margin.

Laboratory examination revealed: red blood cell count 4,300,000, hemoglobin 83 per cent and white blood cells 8,620, with polymorphonuclear cells 40 per cent, lymphocytes 30 per cent, monocytes 10 per cent, eosinophils 5 per cent and basophils 5 per cent. The blood smear showed only rare platelets, which were large and bizarre in shape. The platelet count was practically nil: 8,620 per cubic centimeter. The bleeding time on successive occasions was 7 minutes and 10 minutes. The result of the tourniquet test was positive. Clot retraction was completely lacking at 24 hours. The results of coagulation tests were 17, 21 and 24 minutes. Examination of the marrow by sternal puncture revealed an unusual abundance of megakaryocytes, which were, however, unproductive of platelets.

The diagnosis of idiopathic thrombocytopenic purpura was made, and splenectomy was performed. The splenomegaly was found to be due to congestion with blood, presumably from the repeated transfusions. The platelet count began to rise immediately after operation and soon reached normal levels. Recovery was uneventful, and no further hemorrhagic manifestations occurred. At the time of discharge from the hospital the following blood cell counts were obtained: red blood cells 4,500,000, hemoglobin 13.3 Gm. (86 per cent), white blood cells 8,050, and platelets 1,443,200 per cubic millimeter.

Comment.—In this case numerous transfusions and two curettages of the uterus were performed in a virgin young woman in the attempt to control menorrhagia, the fundamental disease of idiopathic thrombocytopenic purpura not being recognized. Continued hemorrhage finally led to the thought that a hemorrhagic disease might be present. Splenectomy resulted in complete cure.

Case 3.—K. G., a 15 year old girl, was admitted to the Joseph H. Pratt Diagnostic Hospital on Dec. 10, 1947, complaining of excessive menstrual flow. The illness began with the onset of the menstrual cycle about thirteen months prior to admission, when she had a prolonged and profuse menstrual period. She was given antuitrin® (a soluble extract from the anterior lobe of the pituitary), following which the period ceased. The next several periods were essentially normal, but again a prolonged and severe period took place, following which the patient was hospitalized and dilation and curettage performed. Again antuitrin® was given, and again the bleeding diminished. For the next nine months, the periods were not remarkable. However, two months before the patient's admission profuse menstrual flow took place again, continuing for the next five weeks. At this time there was no response to the administration of either antuitrin® or testosterone. The patient was admitted to another hospital, where she was reported to have a red cell count of about 1,800,000 and a hemoglobin concentration of 17 per cent. The leukocyte count was 23,000, with an increased number of polymorphonuclear cells. In addition, myeloblasts and myelocytes were reported as being present in the smear. Because of the possibility of leukemia, roentgen therapy was given over the spleen. Other bleeding phenomena included occasional severe nosebleeds and one episode of bloody vomitus lasting for four to five days. The past history and family history were noncontributory.

Physical examination revealed an adolescent girl with decided pallor. Several small glands were present in the posterior cervical, right axillary and inguinal regions. A grade II systolic murmur was present at the apex and over the entire precordium. The spleen was palpable 4 cm. below the left costal margin.

Laboratory examination revealed: red blood cell count 1,650,000, hemoglobin 32 per cent, and white blood cells 4,000, with 70 per cent polymorphonuclear cells, 15 per cent lymphocytes, 12 per cent monocytes and 3 per cent eosinophils. The reticulocytes numbered 12.5 per cent. The platelet count was 33,000 per cubic millimeter. The blood smears showed only occasional platelets. In addition, the red cells were decidedly abnormal, showing well defined spherocytosis and increased polychromatophilia. The sternal puncture showed a hyperplastic marrow and abundant megakaryocytes which were not producing platelets.

The diagnosis of idiopathic thrombocytopenic purpura in association with hemolytic anemia and granulocytopenia (splenic pancytopenia) was made. It was believed that the entire blood picture could be explained on the basis of hypersplenism.[1] Splenectomy was performed and was followed by a quick rise in platelets and a rapid improvement in the patient's clinical condition. The blood cell counts on discharge were as follows: red blood cells 3,200,000, hemoglobin 8.3 Gm. (53 per cent), platelets 1,216,000 and white blood cells 11,050. Spherocytosis was still present.

Comment.—In this case, menorrhagia was at first considered to be due to a "functional" or endocrine disturbance, for which various endocrine products were given. Later a local lesion was suspected and curettage was performed, although the patient was a 15 year old virgin girl. Studies revealed that the case was of unusual interest, in that not only was idiopathic thrombocytopenic purpura present but there was hemolytic anemia with spherocytosis and a tendency to leukopenia. It is probable that the underlying disease here was familial spherocytosis and that the splenic abnormality led not only to anemia but to thrombocytopenia and granulocytopenia as well (splenic pancytopenia[1]). Cure of all the hematologic abnormalities except the spherocytosis was affected by splenectomy.

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[1] Dameshek and Estren: Spleen and Hypersplenism, New York, Grune & Stratton, 1948.

CASE 4.—R. McC., an 18 year old single girl, was admitted to the Joseph H. Pratt Diagnostic Hospital with the chief complaint of menorrhagia and metrorrhagia of several months' duration. Since the onset of her menses at the age of 11, she had noticed a tendency to bruise easily. About six months previously, her menstrual period had lasted four to five days longer than usual and the flow was much more profuse. The next three periods were entirely normal. Two months before admission she again had a profuse menstrual flow. The patient was admitted to another hospital and given several transfusions, following which the flow stopped gradually. One month before admission the menstrual period was again unusually prolonged. She was at first treated with hormone injections, but since bleeding continued, dilation and curettage of the uterus were done. Slight bleeding continued intermittently, however, and the possibility of a hemorrhagic disease was suspected. Severe nosebleeds had occurred, and the patient had noticed several ecchymoses on her legs. The past history was of interest because of "anemia" since childhood, when she had had an attack of rheumatic fever. A maternal aunt had suffered from nosebleeds and menorrhagia.

Physical examination revealed an essentially normal-appearing girl. A grade II systolic murmur was heard best at the fourth interspace adjacent to the sternum on the left. Several fading ecchymotic areas were present on the legs. No petechiae of the skin or mucous membranes were seen. Neither the spleen nor the liver was palpable, and there was no enlargement of peripheral lymph nodes.

Examination of the blood revealed: red blood cells 4,000,000, hemoglobin 78 per cent (12.1 Gm.) and white blood cells 7,050, with polymorphonuclear cells 85 per cent, lymphocytes 11 per cent, monocytes 2 per cent and eosinophils and basophils 1 per cent each. Examination of the blood smear revealed a great diminution of platelets, and platelet counts on two occasions were 64,000 and 38,000 per cubic millimeter. The bleeding time was at least 10 minutes (bleeding stopped manually). The result of the tourniquet test was negative. The results of coagulation tests (test tube method) were 17, 22 and 25 minutes. Sternal puncture aspiration revealed a hyperplastic bone marrow containing numerous megakaryocytes; however, these showed little platelet formation. Splenectomy was performed and was followed by a rapid rise in platelet levels to high normal values, and all evidence of increased bleeding ceased. At the time of discharge from the hospital, the following blood cell counts were obtained: red blood cells 4,120,000, hemoglobin 11.3 Gm. (73 per cent), white blood cells 9,300 and platelets 1,212,800.

Comment.—In this case of a virgin girl, menorrhagia was first treated with hormones, and then dilation and curettage of the uterus were performed. Continued bleeding led to the suspicion that a hemorrhagic disease might be present. Splenectomy was curative of the fundamental disorder.

GENERAL COMMENT

Idiopathic thrombocytopenic purpura is a disease of unknown causation, occurring far more frequently in female than in male subjects and characterized by an increased tendency to bleed from the mucous membranes and into the skin. The bleeding tendency is associated with a decided diminution in the circulating blood platelets, which in cases of severe disease almost entirely disappear from the blood. Despite the paucity of blood platelets, their precursors in the bone marrow —the megakaryocytes—are present in increased numbers but show a diminution in platelet production from their cytoplasm.[2] After splenectomy, platelet production by the megakaryocytes becomes considerably increased and is reflected in the blood by a great increase in circulating blood platelets. These usually reach abnormally high levels within a few days or a week after operation, gradually becoming leveled off in about two to three weeks. Splenectomy is not uniformly successful in bringing about a return to normal platelet levels, but in our series of cases the operation has resulted in an immediate and complete response in approximately 60 per cent of the cases, a partial or very slow response in 30 per cent and complete failure in 10 per cent.

One of the first indications of the disease in girls is often the presence of decided menorrhagia. This may occur at the menarche; Werlhof, who gave the first definite description of the disease (cited by Dameshek and Miller[2]), reported such a case. The menstrual bleeding may be associated with such other hemorrhagic manifestations as nosebleeds, bleeding from the gums and other mucous membranes, ecchymoses and petechiae. In some cases, however, menorrhagia may be the sole manifestation of the abnormal bleeding tendency.

It is in these cases, or when the menorrhagia is outstanding, that attention may become focused either on a possible local lesion causing bleeding or on the possibility of an endocrine disturbance.

In these circumstances, local therapy, diagnostic procedures, such as dilation and curettage, and even hysterectomy are not infrequently performed. In addition, various forms of endocrine therapy are often given on the empiric possibility that an abnormality of ovarian or other function may be present. This was the situation in each of the 4 cases reported.

These patients had been examined in various parts of New England, and in each instance the erroneous diagnosis of local lesion causing menorrhagia or of an endocrine disturbance had been made. As a result, various operative procedures, usually dilation and curettage, were undertaken before the diagnosis of a possible hemorrhagic disturbance was first suspected. The procedures of dilation and curettage in 3 of the 4 cases was carried out in virgin girls, 1 of whom was curetted twice. Hysterectomy was performed in 1 case in a woman beyond the childbearing age.

The management of these cases indicates a failure to consider the possibility of hemorrhagic disease in the presence of profuse menstrual flow. That this possibility is important to rule in or out in a given case of menorrhagia and/or metrorrhagia, is self evident from the material presented here. How then can the diagnosis of hemorrhagic disease, more particularly of idiopathic thrombocytopenic purpura, be made quickly or ruled out, so that unnecessary operative procedures in the hemorrhagic cases may be avoided?

Probably the simplest, and in some ways the best, method for determining whether a given case of menorrhagia is due to a reduced platelet count is by the careful examination of a stained blood smear preparation. This is often of greater value and importance than a platelet count, which if performed only occasionally, as in many small laboratories, is often far from accurate. To be sure, the blood smear examination for platelets does not give a figure, but neither does it give an inaccurate figure. If the blood smears are well spread, preferably on carefully cleaned cover slips, and well stained, the platelets should be regularly distributed and their numbers readily estimated. Normally, platelets are present both singly and in clumps in every oil immersion field. With a moderate reduction in platelets, clumps are rarely seen and 3 to 6 single platelets may be found in an oil immersion field. With a decided platelet reduction, only an occasional platelet, at most 2, is seen and many fields are completely lacking in these cells.

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[2] Dameshek, W., and Miller, E. B.: The Megakaryocytes in Idiopathic Purpura: A Form of Hypersplenism, Blood. 1: 27, 1946.

Usually in idiopathic thrombocytopenic purpura there is not only a quantitative abnormality in platelets but these bodies show more or less striking qualitative changes. They tend to be large, sometimes as large as red cells, and often have bizarre shapes (oval, elongated, round, etc.).

The blood smear is also important from the point of view of examination of the other two blood elements, the leukocytes and the red cells. Primitive leukocytes when present usually signify leukemia, which is almost always associated with decided thrombocytopenia. Red cell changes of importance relate to the presence or absence of nucleated red cells, spherocytosis and increased polychromatophilia.

Confirmation of a low blood platelet level, as estimated from the blood smear, is obtained by the use of several laboratory tests, including the platelet count, the bleeding time, the tourniquet test and the clot retraction test. The platelet count is determined in our laboratory by the indirect method of Dameshek.[3] With this method, simultaneous counts of the reticulocytes can be performed. The normal platelet count ranges from 400,000 to 900,000 per cubic millimeter. For the bleeding time, the methods of Duke,[4] by which the ear is punctured, and Ivy[5] are utilized. Satisfactory results are obtained with the Duke method with a sharp no. 11 Bard-Parker knife blade, with which the ear lobe is quickly pierced. The normal bleeding time is 1 to 3 minutes by this method. As a rule the lower the platelet count, the more prolonged is the bleeding time. Bleeding times in excess of 5 minutes are definitely abnormal. Bleeding times in excess of 10 minutes are usually associated with extreme reductions in platelet counts.

The tourniquet test is performed either by placing a tourniquet around the arm for a few minutes or, more accurately, by the method of Wright and Lilienfeld.[6] In this standardized technic, the blood pressure cuff is kept maintained at a level halfway between systole and diastole for 15 minutes and the number of petechiae counted in a circle 2.5 cm. in diameter and 4 cm. below the bend of the elbow. As a rule, the lower the platelet count, the more pronounced is the positiveness of the result of the tourniquet test, i. e., the greater is the number of petechiae present. The clot retraction is determined by observation of the behavior of the clot of 1 cc. of blood in a test tube at intervals of 30 minutes and 1, 2 and 24 hours. Normally, retraction of the clot from the walls of the test tube begins in 30 minutes, is appreciable by 1 hour and is complete in 3 to 24 hours.

In the presence of abundant platelets on smear, a normal bleeding time and a negative result of a tourniquet test, idiopathic thrombocytopenic purpura and, in fact, almost all other hemorrhagic disorders which women may be subject to can be discarded. In the presence of abundant platelets, a distinctly increased bleeding time and/or a distinctly positive result of a tourniquet test, one can make the diagnosis of some form of vascular purpura, including that known as pseudohemophilia.[7] In the latter an increased bleeding time is the outstanding or central manifestation and is probably due to a disturbance in capillary retractility following trauma. It hardly ever is necessary to consider an increased coagulation time as the cause of abnormal bleeding in a woman. One can make a simple and fairly accurate test of the clotting time by placing 1 cc. of blood into a clean 5 or 10 cc. test tube and observing the presence or absence of clotting every 5 minutes by gently tilting the tube. More accurate tests for the coagulation time may be made.[3]

Thus, with only a few simple tests which can be readily performed at the bedside or in the physician's office, the diagnosis of a serious hemorrhagic disorder can be readily made or disproved. However, the important thing is for the physician not to forget that menorrhagia may indicate a hemorrhagic disorder rather than a local uterine condition or an endocrine disturbance.

In the diagnosis of thrombocytopenic purpura, the observation of a great diminution in blood platelets is of prime importance. In a laboratory where platelet counts are not regularly and routinely performed, enumeration of platelets by the various methods may often be erroneous and misleading. The simplest method for an approximate enumeration of the platelets is through an examination of a well spread and well stained cover slip blood smear. With a little practice, one can learn quickly to recognize a definite diminution in the blood platelets. Confirmation of the diagnosis is obtained by use of other tests. Sternal puncture is of outstanding importance, not only as a means of ruling out leukemia and other abnormal conditions involving the marrow but to note the characteristic histologic features of idiopathic thrombocytopenic purpura, i. e., increased numbers of megakaryocytes and greatly diminished platelet production. Splenectomy is to be considered as soon as the definite diagnosis of idiopathic thrombocytopenic purpura has been established.

SUMMARY

Four cases of idiopathic thrombocytopenic purpura with menorrhagia were observed, in each of which various gynecologic operations, including dilation and curettage and hysterectomy, were performed without any effect on the profuse bleeding. This suggested the definite likelihood that idiopathic thrombocytopenic purpura might be present.

The various tests by which the diagnosis of idiopathic thrombocytopenic purpura is made are described. It is suggested that each patient with menorrhagia (or other bleeding tendency) as a symptom should have at least a blood smear examination, to rule in or out the presence of diminished platelets. Performance of this and other simple hematologic tests would go far toward reducing the number of unnecessary gynecologic procedures in cases of menorrhagia.

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DIAGNOSIS OF HELMINTHIASIS

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The parasitic infections have traveled throughout the centuries at the forefront of the scourges afflicting the human race, surpassing even cancer, tuberculosis and plague. Not the least important of these are the helminth infections of the gastrointestinal tract, of which two, hookworm and schistosomiasis, are ranked with malaria as the most dangerous diseases of mankind.

Stoll[1] estimated that there are 72,000,000 tapeworm, 148,000,000 fluke and more than 2,000,000,000 roundworm infections distributed throughout the world, a number exceeding the total of the world population. Well over half of these infections reside in the gastrointestinal tract. A not insignificant percentage of them is encountered in the United States and Canada. Again, he calculated that there are about 18,000,000 Enterobius, 2,000,000 hookworm, 3,000,000 Ascaris, 400,000 each of Trichuris and Strongyloides and 100,000 each of Taenia and Hymenolepis infections. The addition of 21,000,000 Trichinella infections elevates these already startling numbers to a really staggering total.

Since World War II, species of worms other than those indigenous to this country have been encountered in returning servicemen, among whom 1 in 15, with duty in the Pacific area, carried home infections with Ancylostoma duodenale, the Old World hookworm. Thus, the possibility of the establishment of another and more resistant variety of hookworm in our southern states becomes likely.[2] With the repatriation of American prisoners of war,[3] the release of servicemen from areas where Schistosoma japonicum was endemic, and the recent immigration of large numbers of persons from the Caribbean islands where Schistosoma mansoni was abundant, American physicians are confronted with problems relating to these infections, as well as to the infections with autochthonous helminths.

DIAGNOSTIC METHODS

Despite the enormous numbers of these diseases and the diverse problems that arise from them, relatively little has been accomplished in the way of diagnosis and treatment. This is particularly true of the gastrointestinal helminth infections. Although practicing physicians and laboratory technicians are well acquainted with the diagnostic tests used in bacterial, spirochetal and viral diseases, relatively few are more than vaguely familiar with the laboratory procedures necessary to diagnose infections with helminths. This apparent lack of interest is due chiefly to the fact that certain of the technics which are in use today are difficult to perform and require special equipment and, even after completion, they are deficient in results. Also, there is scant knowledge concerning the sequence in which they should be employed.

Most of the diagnostic technics in vogue today differ only slightly from the concentration technics of Bass,[4] introduced in 1909 in this country, and of Telemann,[5] published in 1908 in Germany. The latter, nothwithstanding its inadequacies, is still used in many investigative centers. Bass recommended an elaborate technic, using a 1:10 fecal water emulsion, strained through gauze and centrifuged repeatedly through a series of solutions with specific gravities ranging from 1.000 to 1.250. This procedure, designed for diagnosis of light hookworm infections, required from twenty-five to thirty minutes per specimen to perform before microscopic examination of the smear could be started.

Technics described in modern texts of clinical laboratory methods are similarly complicated. The extensive contact with malodorous excrement is usually enough to stifle the enthusiasm of the most ardent diagnostician. Some methods require actual weighing of fecal material, as well as straining of emulsions through gauze; others use large jars for sedimenting and decanting which take up considerable space; some are effective for only eggs that float, others, for eggs that sink; few are effective for both types. Most of these are not suitable for use in the average laboratory, and, when all factors are considered, it is little wonder that the ordinary fecal water smears with their inadequacies are almost universally relied on for diagnosis.

In 1945, one of us (E. H. L.) and Stoll, cognizant of the deficiencies of these technics, but also realizing that the Telemann technic did concentrate to a certain extent operculate as well as nonoperculate eggs, expressed the view that it could be modified to provide adequate concentration of all ova. Using a solution of hydrochloric acid with a specific gravity of 1.030, which permitted the sedimentation of ova, as well as providing adequate comminution of the feces, and a mixture of ether and xylene, which diminished the adhesiveness of the fecal debris, we gradually devised the acid-ether-xylene (AEX) method.[6] When compared with technics such as the Lane DCF (direct centrifugal flotation), Willis brine flotation, Faust zinc sulfate flotation, Telemann hydrochloric acid-ether and the de Rivas acetic acid-ether methods,[7] the AEX technic was found to have a superior degree of diagnostic efficiency.

Although yielding excellent quantities of ova, the use of acid had certain handicaps, viz., distortion of some eggs and corrosion of the microscope objectives, the latter caused by the escape of acid fumes from beneath the cover slip. Therefore, search was made for a substitute for the acid which would overcome these difficulties. Two wetting agents, calgon® (sodium

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[1] Stoll, N. R.: This Wormy World, J. Parasitol. **33**: 1-18 (Feb.) 1947.

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[6] Loughlin, E. H., and Stoll, N. R.: An Efficient Concentration Method (AEX) for Detecting Helminthic Ova in Feces (Modification of the Telemann Technic), Am. J. Trop. Med. **26**: 517-527 (July) 1946.

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hexametaphosphate) and laboratory aerosol® (dioctyl sodium sulfosuccinate N.F.), were found to meet the necessary requirements. Ether and xylene, with a 5 per cent solution of calgon®[8] (CEX technic), the latter replacing the acid, delivered even greater yields than the AEX method and without any distortion of the eggs. Laboratory aerosol® also was found to be a satisfactory substitute, shortening and simplifying the technic. Furthermore, it reduced the quantity of xylene. In a series of comparisons with CEX and AEX concentration technics and dilution counts, the method using aerosol,® too, was found to possess excellent diagnostic efficiency.[9] Because this method can be adapted to routine laboratory use and has proved to be a valuable diagnostic aid, a description of it will be given.

SALINE-AEROSOL®-ETHER-XYLENE TECHNIC FOR CONCENTRATING HELMINTH OVA AND PROTOZOAN CYSTS

1. Measure 4 cc. of feces into a dilution counting flask which has been filled to the 56 cc. mark with isotonic sodium chloride solution and add 8 drops of laboratory aerosol.®
2. Add several glass beads (6 mm.), and after giving the preparation an initial shaking, set aside in the refrigerator for several hours or overnight. When removed, complete the comminution of the feces by vigorous shaking, thus assuring adequate distribution of the eggs throughout the fecal suspension.
3. Transfer 1.5 cc. of the suspension immediately to a 15 cc. pointed centrifuge tube.
4. Add 3.5 cc. of isotonic sodium chloride solution, 5 cc. of ether and 2 drops of xylene. Put a rubber stopper in the tube and shake for thirty seconds.
5. Centrifuge at about 2,000 revolutions per minute for one and one-half minutes and allow the centrifuge to come to a stop gradually without interference.
6. Separate the floating coagulum from the walls of the tube with a thin wooden applicator.
7. Decant quickly, without disturbing the sediment in the bottom of the tube. Then, while holding the tube almost horizontal, clean off any coagulum adhering to the inside of the tube with an applicator covered with gauze.
8. Add 1 or 2 drops of isotonic sodium chloride solution to the sediment. Mix thoroughly with a capillary pipet; transfer the entire suspension to a 1½ by 3 inch (3.8 by 7.6 cm.) glass slide and place a 22 by 30 mm. cover slip on it.
9. Examine the whole preparation for eggs. Those found are from 0.1 Gm. of the original fecal specimen.

This procedure requires little special equipment and, although we prefer to use the Stoll displacement flask, any container similarly marked for measurement may be substituted. A little caution in decanting will be necessary in order not to disturb the sediment. Protozoan cysts may be stained with iodine solution.

Whenever eggs are demonstrated, the contents of the displacement flask may be used for dilution counting without any additional preparation.

A DIAGNOSTIC WORKING PLAN

Because of our location in a large urban community where persons of many nationalities and derivations tend to congregate, bringing with them the parasites indigenous to their native soil, as well as the other commoner parasitic infections, we have found it expedient to adopt a working plan for their diagnosis. Realizing that symptoms alone are unreliable, we have by employing such a systematic approach uncovered in these recent arrivals a number of unusual infections with helminths and protozoa. It is evident that not all the procedures included in our program are applicable in areas with a less cosmopolitan population.

A complete history is obtained, with emphasis on native country or travels, military duty, occupation, customs, habits and opportunities for exposure. After physical examination and routine analysis of the blood and urine, as well as other indicated chemical and serologic tests, specific diagnostic studies are then made. These include fecal examination, Scotch® tape smears, proctoscopy and rectal biopsy, as well as cutaneous tests and pertinent serologic tests.

Fecal Examination.—For routine examination a spontaneously passed stool is preferred. The patient should not be given a cathartic, since it should be realized that a formed stool, gram for gram, contains four times as many eggs as a liquid stool. However, since it is practically impossible to distinguish the species of Taenia by their eggs, it may be necessary to give a cathartic to loosen some of the segments for examination. We advise the patient to pass the specimen directly into a container provided for him, permitting us to judge the portions of feces most suitable for examination. For example, in a search for schistosome eggs the entire 4 Gm. specimen for concentration should be taken from the periphery of the formed stool. The specimen should be examined macroscopically for consistency, blood and mucus, as well as for parasites. Pinworms may occasionally be noted. The finding of motile proglottides of Taenia saginata is of value, since these may crawl off the stool before discharging their eggs, so that the infection may be missed on microscopic examination.

Next, a water fecal smear is examined under the low power of the microscope. The chief handicap of the fecal smear is that not enough material can be examined. When this deficiency is realized and selection is made of the proper portion for examination, it does serve as a valuable diagnostic aid. Selection of bits of mucus or blood when present in examination for schistosome ova is advisable, since these are characteristically deposited on the stool while it is in the lower bowel and, therefore, are oftenest found in such portions of the specimen. In light infections several such areas should be examined microscopically. For other helminth diagnoses, such as hookworm, Ascaris and Trichuris, almost any portion of the stool may be examined, since the ova are ordinarily distributed throughout the specimen. It should be realized, however, that at least 1,200 hookworm eggs per gram of feces are required before detection is regularly possible. Thus, it becomes apparent that the fecal smear, except in infections with Diphyllobothrium latum, in which eggs are usually abundant, must be limited to the diagnosis of moderate and heavy infections, and, in these circumstances, it may be used as a rough measure in determining the necessity for treatment.

Saline-Aerosol®-Ether-Xylene Concentration or CEX Concentration.—Either of these concentration technics will be required to detect light infections with hookworm as well as other helminths. An otherwise obscure eosinophilia may be explained by their discovery.

Scotch® Tape Anal Smear.[10]—In practice we find this to be the most suitable means of diagnosing pinworm infections. A strip of cellulose tape, sticky side out, is placed over the butt of a test tube and firmly pressed against the anal folds. The tape is then applied adhesive side down to a glass slide. Just prior to microscopic examination, the tape is lifted and a drop of water is placed on the slide in the area of the smear and the tape reapplied. Due to the nocturnal periodicity in migration and egg laying of the female Enterobius, patients should be advised not to defecate or clean the perianal area before the examination. Contrary to common opinion, Enterobius eggs, except in very heavy infections, are rarely found in fecal smears.

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[8] Loughlin, E. H. and Spitz, S. H.: A Method (CEX) for Con- Eggs in the Feces Using Calgon, Ether and

[9] and Flader, N. A.: A New Concentration Method Helminth Ova and Protozoan Cysts in Feces, to be published.

[10] Graham, C. F.: A Device for the Diagnosis of Enterobius Infection, Am. J. Trop. Med. **21**: 159-161 (Jan.) 1941.

"Charcoal Culture."—In suspected infections with Strongyloides portions of fecal material are mixed with powdered animal charcoal, moistened with tap water, placed on a moist filter paper in a Petri dish and permitted to remain at room temperature for several days, when the characteristic filariform larvae may be found. These, because of their more slender form, long esophagus and notched tail, are readily distinguished from the filariform larvae of hookworm.

Proctoscopy.—In schistosome infections as much information can be obtained by proctoscopy as sigmoidoscopy yields in amebiasis of the sigmoid and rectum.

Rectal Biopsy.[11]—In suspected as well as proved cases of schistosomiasis we routinely take material for biopsy from the edge or lower surface of the middle rectal valve, removing a 2 to 3 mm. specimen through the proctoscope with a rectal biopsy forceps. This specimen is then placed in a few cubic centimeters of tap water to clear for several minutes. After pressing it flat between two slides, it is then covered with a drop of water and a cover slip applied. Schistosome eggs may be found scattered throughout the tissue. They may be alive, containing active miracidia, or dead and black. This procedure has been employed by us in well over 150 patients without complications and with no more discomfort than that caused by proctoscopic examination alone.

DIFFERENTIAL DIAGNOSES

The clinical symptoms of infections with intestinal worms are deceptive and may mimic other organic maladies. For example, a patient may complain of fatigability, weakness, abdominal distress, hunger pains and constipation and on examination may present pallor and tenderness in the upper part of the abdomen, a picture suggesting peptic ulcer. However, it is not unusual to find a patient with hookworm disease presenting the same symptoms. Infection with Fasciolopsis buski, the large intestinal fluke, may cause similar complaints. Another patient may complain of intermittent or chronic diarrhea and colicky abdominal pains, which may be symptoms of any one of a number of colonic diseases, including chronic bacillary dysentery, amebic infection or even cancer. The added finding of eosinophilia may suggest an allergic condition. However, infection with Strongyloides stercoralis will reproduce exactly this picture.

Ascaris lumbricoides, the large roundworm, because of its "wanderlust," may enter the bile ducts, crawl through the stomach and esophagus to appear at the nares or pass through the eustachian tube and exit from the external auditory meatus. It not infrequently perforates the intestine to produce peritonitis. When disturbed by improper treatment or insufficient anthelmintic medication, the ascarides may "ball up" and produce intestinal obstruction.

Löffler's syndrome with pulmonary involvement not infrequently accompanies established infections with ascaris, as well as hookworm.

Trichuris trichiura, or whipworm, because of its peculiar mode of attachment to the mucosa of the cecum, may permit the entry of pathogenic bacteria, and not infrequently heavy infections produce a picture suggesting appendicitis. We have seen cases of peritonitis and septicemia, both due to streptococci and Clostridium perfringens, arising from what apparently was an insignificant infection with Trichuris.

The gastrointestinal symptoms of Enterobius vermicularis, or pinworm, infection are sufficiently well known to avoid repeating. There are, however, patients with pruritus ani, even nocturnal in periodicity, who are treated with radical measures without thought of the possibility of infection with these parasites. As a result of failure to relieve the symptoms a severe neurosis may be precipitated.

The commoner tapeworms, T. saginata, or beef tapeworm, and Hymenolepis nana, or dwarf tapeworm, are usually innocuous and produce few symptoms other than occasional unusual desires for certain foods, not unlike those of the pregnant woman or the diabetic patient, although the Hymenolepis, in heavy infections, may produce such symptoms of toxicity in children as loss of weight, nervousness and, even, convulsions. On the other hand, Taenia solium, or pork tapeworm, following autoinfection with the eggs, may produce cysticercosis of the brain, with symptoms suggesting brain tumor or epilepsy, and of the eye, with its destruc*tion. D. latum, or fish tapeworm, may occasionally* be associated with a macrocytic anemia. Echinococcus, or dog tapeworm, the larval forms of which may infect man as an intermediate host, produces echinococcus cysts of the liver, spleen, lung, bone or kidney.

Infections with the schistosomes, or blood flukes, after their establishment in the veins of the colon usually manifest themselves by colitis with anemia, eosinophilia and secondary nutritional disorders and vitamin deficiencies. Complications, such as hepatic cirrhosis and splenomegaly, are commonly encountered, not infrequently with ascites. Ectopic parasitism of the brain, particularly with S. japonicum, causing symptoms of tumor, are occasionally seen.

During the early stages of infection with Trichinella spiralis, or pork worm, the symptoms may resemble those of acute gastroenteritis or influenza, and at this time more than a presumptive diagnosis is difficult to make. Eosinophilia and periorbital edema appear first in the stage of larval deposition and encystation. In the latter phase the cutaneous test with trichinella antigen and precipitin and complement fixation tests when the reactions are positive indicate the nature of the disease. The search of tissue and body fluids for larvae, except in heavy infections, is tedious and usually does not warrant the effort.

CONCLUSION

Thus, in the majority of cases, the clinical manifestations of infections of the gastrointestinal tract with helminths must be closely correlated with the results of fecal and other pertinent examinations. The diagnosis of these infections, therefore, is to be found in the laboratory rather than in the bedside or office examination. Judgment, however, should be exercised in directing diagnostic procedures, and the fact that a patient may have a parasitic infection due to worms or protozoa does not exclude the possibility of coexisting organic disease.

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[11] Ottolina, C., and Atencio, M. H.: New Methods for Precise Clinical Diagnosis of Schistosomiasis Mansoni, Rev. Policlin. Caracas **12**: 348-380 (Nov.-Dec.) 1943. Hernandez-Morales, F., and Maldonado, J. F.: Diagnosis of Schistosomiasis Mansoni by Rectal Biopsy Technique, Am. J. Trop. Med. **26**: 811-820 (Nov.) 1946.

We believe that most of these procedures are so simple and practical as to be within the scope of the practitioner of gastroenterology or medicine and that they will enable him to make a diagnosis in what might otherwise be an obscure condition.

ABSTRACT OF DISCUSSION

Dr. Norman R. Stoll, Princeton, N. J.: To a parasitologist there are two points about this paper that are of special interest. The first is the evidence that we are moving in the direction of greater efficiency and convenience for the practitioner in the diagnosis of infections with helminths. The second is that it is the physician with an interest in parasitologic problems who is contributing to these improvements. Dr. Loughlin and Dr. Spitz may have passed over a little too hastily the history of the development of methods for fecal diagnosis. The logical procedure to discover whether or not any eggs are present in intestinal discharges is the examination of some type of concentrated sediment obtained from feces. For special types of eggs, special technics to float those which float (as hookworm) may be rapid and efficient. But to get a comprehensive diagnosis of whether any eggs are present, the technic must, of course, bring to view those that do not float as well as those which do. As Dr. Loughlin made clear, this points to some modification of the Telemann concentration technic as a mainstay. The amendments Dr. Loughlin and I made of it on Guam are now further improved on by the substitution of such detergents as calgon® and laboratory aerosol.® Other workers have also suggested the use of detergents. The virtue of the Loughlin-Spitz recommendation is the precise combination of materials and steps by which a known degree of efficiency is secured. Second, I do not need to belabor the point that the nonmedical specialist may not always appreciate certain attributes of technics considered valuable from the practitioner's standpoint. Dr. Loughlin and Dr. Spitz do, and their efforts should hasten the day when the casual approach to fecal diagnosis of helminth infection, which I think it is fair to say characterizes the average practitioner, may be replaced by a more technically competent approach.

Dr. Donovan C. Browne, New Orleans: I have seen patients given even psychosomatic treatment only to find a few months later that they are worm infested. It must be kept in mind that many of these infections cause no symptoms at all; as a matter of fact, in our studies my colleagues and I found that in these infections from 38 per cent down to 0 of the group of symptoms in the patient's presenting complaint bears no relation to the helminthiasis and is simply concomitant at the time. The worms should be removed then, but the patient should be examined carefully.

Dr. Loughlin: Because of the shortness of time I had to omit several pages, and it was in those that we discussed symptomless infections. We were quite successful in detecting such infections by using the methods described in this paper. I have no idea of how many have used the zinc sulfate concentration technic as a routine procedure, but we employed it in a number of instances. The objection to this procedure is that, although it seems simple on first reading, repeated washing and resedimentation are necessary to get a satisfactory film at the top of the tube. This takes much of the technician's individual attention and time, and, when time is an important factor and a large number of specimens must be run through in routine diagnosis, we found that this procedure is not practical. With the laboratory aerosol®-ether-xylene method which I discussed here, the eggs of schistosomes were detected as readily as with the CEX method, and these procedures are remarkably effective in the diagnosis of schistosomiasis when compared with rectal biopsies.

Council on Physical Medicine

REPORTS OF THE COUNCIL

The Council on Physical Medicine has authorized publication of the following reports. Howard A. Carter, *Secretary.*

KEAT METHOD AND FILTER FOR EPILATION BY ROENTGEN RAYS NOT ACCEPTABLE

Address: Keat, Inc., Suite 1763, 17 North State St., Chicago.

Now and then the Council on Physical Medicine is called on, in order to fulfil its assumed obligations to the medical profession and the public, to investigate and render reports on methods and products which it considers detrimental to the public health and welfare. One such method is that employed by Keat, Inc., of Chicago, Omaha and Kansas City. In response to questions as to the safety and effectiveness of a method of epilation practiced by this firm, the Council on Physical Medicine has prepared the following report:

From the evidence it would appear that the Keat Method is based on a patent by Violet Arnold, No. 2,389,403, dated Nov. 20, 1945. The document states that it is "an object of this invention to provide a treatment for removal of hair from the human body without injury to the body tissue." It claims that this object "is achieved by subjecting the portion of the body from which the hair is to be removed to x-rays as modified by filters of varying thickness and construction including a laminated aluminum and water filter." The procedure is further described as a "method of permanently removing hair from the human body comprising the steps of subjecting the portion of the body from which the hair is to be removed to x-rays from a tube to which is applied 60 to 70 kilovolts, filtering the x-rays in three successive daily treatments respectively, of five to ten minutes exposure, through one-half millimeter of aluminum, one millimeter of aluminum, and a laminated filter constituting spaced sheets of aluminum and an intervening body of water, repeating a plurality of daily exposures after elapse of three to five weeks, and subjecting the treated portion to monthly exposure of ten to fifteen minutes through the laminated filter eight to twelve weeks following the second group of daily exposures."

Radiation Intensities

	Keat Without Water	Keat with Water	Aluminum Filter, 2 mm.	Aluminum Filter, 1 mm.
No additional filter.........	12.6	12.0	9.2	12.8
Added ¼ mm. copper.......	3.4	3.4	3.4	....
Added 1 mm. copper........	0.95	0.95	0.95	....

The essential part of the patent appears to be the specially designed filter consisting of two sheets of aluminum with a gasket fastened between them in such a way that it creates a thin space enclosing, or at least capable of enclosing, a layer of water between the two layers of aluminum. The layers of aluminum are stated each to be 0.5 mm. thick and the layer of water is intended to be 1 mm. thick. The document contains the statement, "I am aware of the fact that other metals than aluminum can be used for the filters as, for example, copper-lead, tin and silver." From this it appears that the essential feature is the layer of water. Since some theoretic interest attaches to the possibility of altering the spectral quality of roentgen rays filtered by this device, the following data are quoted from the report of a skilled radiation physicist who studied the device. The specimen secured for examination was found to contain only about 0.1 cc. of water in its cavity; calculation shows that the space ought to have contained more than 7 cc. When the space was so filled with water, the accompanying transmission data were obtained, the figures being stated in r/m at a distance of about 25 cm.

The results set forth in the table are in agreement with theoretic considerations which indicate that the addition of this layer of water in the aforementioned system does not bring about a significant gain in the homogenization of the beam. The water here has no special virtue as a filter to permit penetration of the beam to subcutaneous parts without injuring the skin. It was concluded that this filter had no advantage over ordinary aluminum filters for protecting the skin while irradiating subcutaneous structures.

Reports from the clients of Keat, Inc., have been difficult to interpret because there are indications that the roentgen rays are supplemented at least occasionally by another depilatory procedure using a wax.

The dangers of using roentgen rays for the treatment of hypertrichosis have been set forth in an article by Cipollaro and Einhorn in The Journal of the American Medical Association (135: 349-353 [Oct. 11] 1947). The evidence in the Council files indicates that hair can indeed be removed by roentgen rays and that this epilatory effect is not abolished by filtering the rays through an aluminum filter. However, the evidence also shows that roentgen rays are too dangerous to be used for this purpose. A single large dose, or smaller doses repeated over long periods of time, will cause damage to tissues that may not be noticeable at the time of treatment but may come to light years after the administration of the roentgen rays. The injury has been known to become manifest as pigmentation, depigmentation, telangiectasia, wrinkling, atrophy, keratoses, ulceration and finally carcinoma. These facts have been reported and stressed repeatedly in medical literature by the pioneers who worked with roentgen rays and radium.

The Council on Physical Medicine, after careful consideration of the evidence available, voted to declare the Keat Method and Filter for Epilation by Roentgen Rays unacceptable and to advise the profession of its opinion in a published report.

MULLIKIN PORTABLE RESPIRATOR NOT ACCEPTABLE

Manufacturer: W. J. Mullikin Company, 1010 Vermont Avenue, N.W., Washington 5, D. C.

The Mullikin Portable Respirator is designed for giving artificial respiration for a limited period of time. According to the manufacturer it is not intended to take the place of the tank type of respirator but is an emergency unit. The firm calls it a Mullikin Portable Iron Lung, and the word "Millikin" is also used at times.

The principle by which the respirator functions is essentially the same as that of other small respirators of the cuirass type. The negative pressure is created by a small bellows, which is operated by an electric motor.

The aluminum cuirasses come apart in anterior and posterior halves for application to the patient. The two parts may be secured tightly by wing nuts. Rubber bands are employed to join the cuirass to the patient to make the enclosure air tight. Separate rubber sleeves may be slipped over the patient's arms and fitted to the recesses prepared for them on the cuirass.

The Council on Physical Medicine has inspected two Mullikin Portable Respirators of the cuirass type. In both instances the investigator reported mechanical limitations and failures: for example, the air tube did not attach firmly to the chest pieces, the control switch for the rate of respiration was labeled wrong (when turned in the direction marked "Increase" the pump slowed down and when turned in the opposite direction, marked "Decrease," it speeded up), the rubber collar did not slip over the head easily and the abdominal seal was not comfortable.

The method of promotion may be of interest to the medical profession and hospital management. A large white trailer on which was written "This Millikin Portable Iron Lung to be Presented. . . ." has been used and the names of a local club as donor and a hospital (as recipient) have been mentioned. Arrangements are provided for contributions to finance the project.

The foregoing report was referred to the W. J. Mullikin Company for comment prior to publication. In its reply the company requested the Council not to publish the report in The Journal until the Council has more pertinent facts. The manufacturer pointed out that the two respirators which have been investigated were no longer being promoted; that the Council had not tested any new equipment, so that the foregoing statements would be misleading; that the new respirators have plastic cuirasses, and that a new style collar is now being used.

The Council replied that the next step obviously would be for the firm to submit a new model of the Mullikin Respirator for consideration. Ample time has been given the company to submit an apparatus, but the Respirator has not been received. Therefore, the Council on Physical Medicine reaffirms its previous stand not to include the Mullikin Portable Respirator in its list of accepted devices because (1) it was found to be mechanically imperfect and (2) sufficient evidence to substantiate its efficacy for emergency purposes has not been made available.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

Austin Smith, M.D., *Secretary.*

FOLIC ACID (See New and Nonofficial Remedies 1948, p. 558).

The following dosage form has been accepted:

Abbott Laboratories, North Chicago, Ill.

Solution Folic Acid: 15 mg. per cc., 1 cc. ampuls. Each cc. contains folic acid 15 mg. and methylglucamine 24 mg. as solubilizing agent.

Tablets Folic Acid: 5 mg.

INFLUENZA VIRUS VACCINE, TYPES A AND B (See New and Nonofficial Remedies 1948, p. 488).

The following dosage form has been accepted:

The National Drug Co., Philadelphia 44

Influenza Virus Vaccine, Types A and B: Packages of 1 cc. and 5 cc. vials. Preserved with sodium ethylmercurithiosalicylate .01 per cent.

PROTEIN HYDROLYSATES (See New and Nonofficial Remedies 1948, p. 416).

The following additional dosage form has been accepted:

Mead Johnson & Company, Evansvlle 21, Ind.

Solution Amigen 3⅓% with Dextrose 3⅓% in ⅓ Lactate-Ringer's Solution: 500 cc. bottles. Each 100 cc. contains 3⅓ Gm. of Amigen and 3⅓ Gm. of dextrose in ⅓ the usual concentration of lactate-Ringer's solution.

PENICILLIN (See New and Nonofficial Remedies 1948, p. 148).

The following dosage forms have been accepted:

Abbott Laboratories, North Chicago, Ill.

Tablets Crystalline Potassium Penicillin G (*Buffered*): 50,000 and 10,000 units. Buffered with calcium carbonate 0.25 Gm.

Crystalline Potassium Penicillin G: 5,000,000 unit vials.

Troches Crystalline Potassium Penicillin G: 1,000 and 5,000 units.

Premo Pharmaceutical Labs., Inc., South Hackensack, N. J.

Crystalline Procaine Penicillin G in Oil: 300,000 units per cc., in sesame oil with aluminum monostearate 2 per cent W/V, 1 cc. glass syringes.

The Upjohn Company, Kalamazoo 99, Mich.

Tablets Crystalline Potassium Penicillin G (*Buffered*): 50,000, 100,000 and 250,000 units. Buffered with calcium carbonate 0.25 Gm.

Ointment Calcium Penicillin: 1,000 units per gram, 28.35 tubes.

Ophthalmic Ointment Calcium Penicillin: 1,000 units per gram, 3.0 Gm. tubes.

Troches Crystalline Potassium Penicillin G: 5,000 units.

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SATURDAY, APRIL 9, 1949

AMERICAN ACADEMY OF PEDIATRICS REPORT

In 1948 the American Academy of Pediatrics, in cooperation with the United States Public Health Service and the United States Children's Bureau, completed a nationwide study initiated in 1944 of child health services. The study was supported by several leading voluntary health agencies. The survey included an analysis of the services of physicians and dentists in private practice, of hospitals and community health agencies and of pediatric education in our medical schools. The complete record of the studies just made available has been published by the Commonwealth Fund under the title "Child Health Services and Pediatric Education."[1]

The frequently made statement that heart disease, cancer and mental illness are the number one health problems of this country is challenged by the suggestion that the future of the nation is primarily dependent on our children and that the real number one health problem is how to make good medical care available to all infants and children. Statistics indicate that the children of the United States are among the world's healthiest, but the fact remains that our states are not equally effective in child health programs. In some states practically all babies receive the protection of hospital services at the time of birth; the survey indicates that at least 100,000 babies are born each year without medical attention of any kind. In some states only half the babies are born in hospitals. Obviously the quality of medical service given to babies and children depends on the availability of competent general practitioners and specialists. The survey reports that three fourths of the private care of children of the nation is given by general practitioners. Both the quantity and the quality of pediatric training given to general practitioners are said to be inadequate, if judged by the services given to infants and children in cities with 50,000 or more population. Three fourths of the practicing pediatricians are in such cities, and one half of all the pediatricians are in the communities that have medical schools.

In a brochure issued for the public, the American Academy of Pediatrics emphasizes particularly the variations between the amount and quality of medical service over the United States as a whole. Thirteen million children live in isolated counties where there are deficiencies not only of doctors but also of hospitals and other medical facilities. The report indicates that 46 per cent of the hospital care given to infants is in hospitals in which infants are not separated from older children who are sick; indeed, in many hospitals children may be in the same wards with sick adults.

The report focuses attention on the question of training in pediatrics given to students in our medical schools, as fundamental to every aspect of the problem of child care. More clinical instruction is urged, including more clinical teaching hours. For this more money will be needed to recompense teachers who must take such time away from their practices. While a few medical schools provide three hundred hours of clinical teaching in pediatrics for undergraduates, the average is one hundred and sixty-one hours, and one school was found which provided only twenty-eight hours of pediatric teaching. A second recommendation suggests the provision of financial aid in the form of fellowships for medical students who have completed internships and residencies. The program includes also affiliation of outlying hospitals with medical schools and weekly visits by specialists from medical centers to such regional hospitals; thus graduate training in pediatrics may be decentralized and pediatric service made available in outlying areas. The brochure comes to the ultimate conclusion that more money is needed for teaching pediatrics, that the budgets of departments of pediatrics in medical schools must be strengthened and that the whole program must ultimately rest on immediate improvement of the quantity and quality of teaching pediatrics to medical students, interns, residents and practicing physicians.

GOVERNOR WARREN'S CALIFORNIA HEALTH INSURANCE PROGRAM

For the third time, Governor Warren is now advocating a compulsory health insurance program for California. In a message to the legislature January 3, he claimed that millions of people in California cannot pay for adequate medical care "without crippling their finances and without depriving themselves of other things that are needed to raise a good American family." He urged legislative adoption of a system of "health insurance to which everyone contributes and through which everyone will receive benefits in time of sickness."

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[1] Child Health Services and Pediatric Education: Report of the Committee for the Study of Child Health Services of the American Academy of Pediatrics, with the cooperation of the United States Public Health Service and the United States Children's Bureau, New York, The Commonwealth Fund, 1949.

Shortly thereafter a bill reputed to embody the governor's ideas, S. 157, to enact the "California Prepaid Health Service Act," was introduced in the California Senate. The program would be financed, in part, by compulsory payroll taxes, referred to as "contributions," imposed on employers and employees. The existing Department of Employment and a newly created Health Service Authority would administer the Act. This Authority would include the director of public health as chairman, the chief executive officer of the Department of Employment, three physicians, two representatives of labor, two representatives of employers and one dentist, the last eight members being appointed by the governor. An executive director of the Authority would be appointed also by the governor but on nomination by the Authority. A medical advisory board, a hospital service advisory board and an advisory committee on postgraduate study would be established, all of which would have no other responsibilities than giving advice.

The Act would establish a Health Service Fund created by the "contributions" exacted of employers and employees. Any person who cared to attest his reliance on healing by prayer in the practice of religion might on request be excused from contributing to the fund and would then be ineligible to receive the benefits. An employee and each of his dependents will be eligible for health services during any calendar quarter if during the preceding calendar quarter the employee was paid wages in employment of not less than $150. A person who was unable thus to qualify for benefits may nevertheless become eligible if during the preceding calendar year he was paid wages of $750 or more.

An eligible beneficiary will receive—the bill promises—medical, hospital and laboratory services as defined in the bill from a physician or hospital of his choice for a period of not to exceed one hundred days for each continuous period of disability or hospitalization. Medical services will consist of services rendered by a physician licensed in the state whenever such services are required by the standards of good medical practice for preventive, diagnostic, therapeutic or other medical treatment or care of a beneficiary necessarily confined in a hospital as a registered bed patient, and such posthospital medical care as may be necessary and allowed under rules of the Authority. Embraced in the term, too, will be the services rendered by dentists licensed in the state when performed in a hospital for the treatment of the diseases and injuries of the jaws and their dependent tissues, excluding tooth removal, tooth replacement, tooth restoration, orthodontics and treatment of pyorrhea.

Hospital services, within the meaning of the bill, will consist of the following services when necessary and prescribed by the attending physician: bed and board in a ward or semiprivate room, services of a dietitian, general nursing care, use of operating or delivery room including surgical and anesthetic supplies and the use of cystoscopic rooms. Such drugs, biologics, bandages, dressings, oxygen, blood and plasma will also be supplied as they may be required during the period of hospitalization. Laboratory services will be supplied in the hospital, but the Authority may authorize beneficiaries to obtain the laboratory services outside of the hospital in standard laboratories approved by the Authority when necessary and prescribed by the physician. The Authority may require in cases other than obstetric and those necessitating surgical treatment the payment of bed and board charges for a period not to exceed two days and the payment of a part of the cost of laboratory services not to exceed $10 in connection with any single disability for services rendered outside of a hospital. The Authority may also permit, in special cases, special nursing services, convalescent care in a rest home and private room where isolation is required, all under such conditions as the Authority may provide by rule.

If and when the financial resources of the fund permit, the Authority may provide additional benefits, such as physical therapy treatments, ambulance service and material appliances.

If an eligible beneficiary receives earnings in excess of $1,500 during the qualifying calendar quarter or receives earnings in excess of $6,000 during the qualifying calendar year, he will receive in lieu of medical services reimbursement for such services in accordance with the fee schedule adopted by the Authority. The Authority will be authorized by rule to prescribe "standards of service" and prescribe rates, fees or charges to be claimed and paid for all services furnished beneficiaries, or the Authority may authorize its director to perform these functions.

Article 12 of the bill undertakes to permit an employer to elect to provide health services to employees by means of a voluntary plan and if that plan meets with the approval of the Authority the employer and his employees will be excused from contributing to the fund. The bill spells out in considerable detail, however, the requirements that a voluntary plan must meet before it will merit approval and contemplates that reports concerning the operation of the plan must be submitted to the Authority.

The concluding article of the bill, Article 14, deals with penalties. Unprofessional conduct calling for the revocation of his license is charged against a physician who fails to disclose any "material fact known to him to obtain any service or benefit provided under the act." Each physician who participates in the program will presumably have to determine at his peril what is or is not a material fact. Failure to disclose by physicians and by others is also declared to be a misdemeanor, as is also wilful violation of any rule or regulation promulgated or published to effectuate the program. Scattered throughout the twenty pages of this bill are innumerable statements in which the Authority is authorized by regulation to impose requirements. Apparently any express and clear provision for hearings on these regulations or for their publication in any definite manner is not included; yet a violation of any one of these would constitute a criminal offense. This is the application of the methods of the "police state" at their worst to dominate the practice of medicine politically.

While a beneficiary may utilize more expensive hospital accommodations than those supplied under the bill, by paying the difference in cost, if a beneficiary and a physician mutually agree that the fee for medical services set by the Authority is inadequate and if an additional fee is accepted by the physician, except in the case of a beneficiary entitled to reimbursement only, the license of the physician is made subject to revocation. California physicians would face a precarious and uncertain future if this preposterous bill were to be enacted into law.

SHOE-FITTING FLUOROSCOPES

The National Shoe Retailers Association has begun to receive requests from some of its members for factual data on the use of shoe-fitting fluoroscopes and its ultimate effect. The most recent stimulus, apparently, was an attempt in New York City to force the employment of x-ray technicians to operate such machines. A hearing on the matter was held by the New York Board of Health in 1947, and restrictive rules for operation of such devices were established. Three major medical societies of New York City have condemned their use. In 1948 the American College of Radiology circulated a discussion of the dangers of fluoroscopic shoe fitting in their News Letter.

The American Standards Association in 1946 promulgated the "Safety Code for Industrial Use of X-Rays" (A. W. S. Z 5 4.1), reiterating the American acceptance of a "tolerance dose" of 0.1 r per day of general stray irradiation and setting the specific limit of 2 r per exposure (to the foot) for shoe-fitting machines. This code was quoted to the shoe retailers, but obviously does not alone suffice. They must ultimately decide whether they will recommend continuance or abandonment of their use.

Injuries attributed to shoe fitting have not been reported. One cannot be sure, however, that skin injuries and epiphysial distortions may not have occurred and been attributed to other causes, or merely ignored. From the histories of late roentgen cancer on the hands of roentgen ray pioneers, one can surmise that the time is still too short for this to appear in feet that have been overirradiated, even though erythema has not been observed. From figures available this seems unlikely but not impossible. Consider the severe roentgen injuries that resulted from illicit use of small fluoroscopes in the health departments of some war plants in Los Angeles.

A number of shoe-fitting fluoroscopes of several manufacturers have been measured at one time and another in several cities, as actually in use in retail stores. The dosage rate at the sole of the shoe ran from 11 to 140 r per minute. The high figure resulted from removal of the aluminum foot plate, a change which pleased the salesmen because it made the light so bright! Many machines have an automatic cutout, limiting each exposure to one-fifth or one-half minute. None that is known reduced the single exposure below 4 r, and some went to 50 r. The sole of the shoe reduces this by half if it is a thick sole. The stray radiation at the pelvis runs 0.1 to 0.5 r per minute.

Danger arises from two sources; namely, too high an intensity and uncontrolled length of exposure or repetition of exposures. Without an expert to operate the machine, or at least an indoctrinated employee of special assignment, these dangers could probably not be successfully avoided. The machines will be used in a lighted room (not in the dark with eyes adapted, as the medical radiologist does his fluoroscopy). The 2 r limitation of the code is too stringent from the point of view of satisfying the salesman and the customer—or especially the customer's mother, since these machines have their greatest use for fitting children. If one sets the intensity high enough for easy seeing, the 2 r total arrives before one has finished looking. If one adjusts for a comfortably long look, one is forced to choose too dim a light. However dependably the automatic switch may work to limit the exposure, uncontrolled repetition, in trying another pair, or in going to another shoe store, or even through mere customer's caprice, appears to be unavoidable.

Those who favor the procedure urge that these doses are really rather small compared to what people are often given in medical radiology and that the danger of seriously overdoing the intensity or the repetition is remote. Nevertheless, the injury of even one person in ten thousand could not be condoned if the chance taken yields but small reward.

How necessary is fluoroscopy to get a well fitting shoe? Many a good foot has been made ugly and troublesome by years of badly fitted shoes, far more presumably than have been deformed by roentgen injury. Is it not possible, however, to avoid both hazards by merely fitting shoes carefully, using the ordinary methods of measurement and observation? The bitter fact remains that fluoroscopy simply cannot be really safe in the hands of those untrained to its use and relatively ignorant of its dangers.

Current Comment

THE HILL BILL FOR EXTENSION OF MEDICAL CARE

Elsewhere in this issue (page 1007) appears an abstract of a bill introduced into the Senate of the United States on March 30 by Senator Lister Hill and four other senators associated with him. The bill proposes allocation of federal funds to the individual states, so that state authorities, established in the field of medical care, may secure voluntary hospitalization and sickness insurance policies for persons unable to pay the costs of medical care either in whole or in part. On the local and state authorities is placed the responsibility for determining the need of the persons concerned in each instance. Provision is made for aiding hospitals, health centers and diagnostic institutes so that they may render necessary services to those unable to pay. The measure would thus make effective as law several of the most significant points in the twelve point program for the extension of medical care developed by the American Medical Association. According to reports in the press, Mr. Hill was aided in the development of this legislation by conferences with the American Hospital Association, the president of the Pennsylvania State Medical Society and several other interested individuals and agencies. The measure, which has been considered by the Washington office of the American Medical Association and by the Executive Committee of the Board of Trustees, is a type of legislation that corresponds with the principles of the 12 point program which have been urged by the American Medical Association for some years. Such legislation is in accord with the basic principles of freedom of choice of physician and hospital, and absence of interference in the personal relationship between doctor and patient. Apparently many legislators, who represent great numbers of American citizens, are aware of the importance of maintaining these principles. Several other measures in relationship to these same principles are, it is understood, to be introduced to the Congress. No doubt, public hearings will be heard on all of these measures and all of them will come before the House of Delegates at its next session, so that the House of Delegates may establish the policy of the American Medical Association on new measures concerning extension of medical care. Senator Hill has also been quoted as preferring to build on the system already prevailing rather than destroying our civilization to experiment with a new one. The measure proposed by Senator Hill apparently would require some clarification, and there should be definite assurances as to the extent of necessary regulations in making the measure, if passed, effective.

MEDICAL SERVICE AREAS IN THE UNITED STATES

Elsewhere in this issue is a progress report on the study of medical service areas begun more than two years ago by the Bureau of Medical Economic Research of the American Medical Association. The objective is to map the areas in which patients reside who are served by physicians in the principal towns and cities in the United States. Now that the areas have been established, the number of persons per physician in each area can be determined and the resulting population-physician ratios will provide some indication of the distribution of physicians. Traditionally this ratio has been established for counties and states. In this era of rapid transportation many of the patients seen by a physician in any one year actually reside outside the physician's own county. The map accompanying this progress report shows 757 areas of many shapes and sizes; this is an average of four counties per area. Of these 757 areas, 212 are interstate and 545 are intrastate; physicians and patients frequently cross state lines to give or receive medical care. There are 1,090 primary medical service centers, of which 87 are classified as prime-primary centers. This latter designation means that each of these 87 cities offers every type of medical treatment and surgery. The primary medical service centers are cities and towns which, relative to the nearby towns and villages, are primary sources of medical care. All these numbers are, of course, subject to revision before the book manuscript is completed—probably late in 1949. The attention of the student of marketing problems is drawn to this study by specific statements in the progress report. There are more areas and more centers than recent general trading area studies have established. The ways in which the people secure medical service are quite similar to their general trading habits but medical purchase is more localized. During these two years much assistance has been given the Bureau of Medical Economic Research by the secretaries, both elected and executive, of the state and county medical societies. This is an informed opinion, nonstatistical type of survey. When the study is finally completed, accurate information should be available for the first time regarding the supply and distribution of physicians throughout the country. Even this preliminary report should be sufficient evidence to convince many that the number of persons per physician in any county is a meaningless figure. Few of the boundary lines of the 757 medical service areas on the map coincide with the boundaries of counties; henceforth citation of population-physician ratios by counties and enumerations of counties without physicians should be abandoned.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

April 4, 1949.

New Health Bills Emphasize Voluntary Participation

During the last week of March, new bills were introduced in both House and Senate calling for federal support of voluntary health insurance plans and of medical education, but on a voluntary rather than a compulsory basis. Principal attention was focused on the bipartisan bill (S.1456), cosponsored by Senators Hill, O'Conor, Withers, Aiken and Morse, which is designed to broaden coverage by existing prepayment medical and hospital care plans. Another major bill, S.1453, has for its purpose the alleviation of the shortage of physicians, dentists and allied professional personnel by subsidizing their training institutions and providing for scholarships. Its sponsors are Senators Pepper, Murray, Humphrey and Neely. A few days earlier Rep. W. M. Wheeler, (Democrat, Georgia) introduced in the House H.R. 3828, which would authorize federal loans to professional schools and their students.

Further along on the legislative path toward enactment is another national health measure, S.1411, which was reported favorably to the Senate on March 25 by the Labor and Public Welfare Committee. Also a bipartisan bill, sponsored by fourteen Democratic and Republican Senators, S.1411 provides for federal assistance to the states in support of preventive, diagnostic and therapeutic services for school children between the ages of 5 and 17. It is scheduled for final consideration on the Senate floor early in April and, if passed, will then go to the House for action.

Strongly urging favorable action on the Voluntary Health Insurance Act (S.1456) introduced by Senator Hill, three other Senators and himself, Senator Herbert O'Conor, Maryland Democrat, stated: "Objection is found to any proposals that would seek to regiment either the prospective recipients of these services, or the members of the medical profession who would be called upon to provide them. In [this] bill, I believe that the high objectives of any national medical care program can be achieved without disturbing, and in fact, with actual strengthening of, the satisfactory procedures in the field of health which have been established and perfected during the past. . . . I am convinced, and leading members of the medical profession in my own State with whom I consulted believe that the method of approach used in the proposed legislation is sound. We feel that it offers possibilities for development into a complete program which would answer all needs and yet maintain the present healthy relationship between the patient and members of the medical profession, while at the same time making possible desired extension of the services in question without entailing exorbitant outlays by the Federal government." (See condensation—Page 1007.)

The Pepper-Murray-Humphrey-Neely bill is applicable to training of physicians, dentists, nurses, sanitary engineers and dental hygienists. It provides for outright grants to schools, in proportion to the size of enrolment, as well as grants for improvement of physical facilities and equipment, and scholarships. The Wheeler bill authorizes loans rather than grants and covers schools of medicine, dentistry and osteopathy.

Public Health Service Budget of $165,674,000

Health consciousness of members of Congress, with particular reference to heart disease, cancer and mental illness, was demonstrated anew March 9 when the House passed, without dissent or amendment, a record $165,674,000 budget for the United States Public Health Service for the fiscal year beginning July 1, 1949. The sum is $964,060 above the present year's appropriation, and, in addition, $100,825,000 was approved for contract authorization, chiefly for aid to the states in furtherance of the Hill-Burton hospital act.

Most drastically slashed by the House was the allocation for general assistance to the states to conduct public health demonstrations, promote industrial hygiene investigations and perform miscellaneous functions in preventive medicine. The Bureau of the Budget recommended $24,408,000 for this purpose, but this figure was cut to $13,600,000 by the House. On the other hand, $11,387,000 was voted for the federal mental health program (including grants to states and research grants to institutions), compared with $10,562,000 recommended by the Budget Bureau. Similarly, the House allowed $16,400,000 for the cancer program—$300,000 above the figure recommended—and almost doubled the sum for heart. The Budget Bureau had approved $4,000,000 in appropriations for this program, but $7,725,000 was provided in the bill as it passed the House and was sent to the Senate for action. In addition, the House—on its own initiative—granted $2,000,000 in contract authority for construction of heart research facilities; $500,000 for subsidization of teaching, and $500,000 for traineeships in institutions. Contract authorization for research was pegged at $630,000 by the Budget Bureau, but that figure was raised to $1,200,000.

During the protracted Appropriations Committee hearings which preceded presentation and adoption of the Federal Security Agency budget, of which the Public Health Service estimates are a part, numerous medical practitioners, researchers and administrators testified in support of the federal cancer, heart and mental health programs. Among them were Drs. P. B. Cornely, Carl O. Flagstad, Tinsley R. Harrison, A. C. Ivy, T. Duckett Jones, William C. Menninger, Cornelius P. Rhoads, George S. Stevenson and S. B. Wortis.

Secretary of Defense Johnson Indorses Campaign

One of the first official acts of Louis Johnson, following his succession of James Forrestal as Secretary of Defense, was to affirm his support of the medical-dental procurement campaign and reiterate the acute shortage facing the Army and Navy unless there are more volunteers. He disclosed that telegraphic inquiries had been received from 1,600 former A.S.T.P. and V-12 students, but only 150—physicians and dentists combined—had applied for commissions and assignment to active duty.

To expedite action, Secretary Johnson said that he is sending to county medical and dental societies the names of more than 13,000 prospective candidates who either did not reply to Forrestal's letter or whose answers were negative. The county societies are being asked to get in touch with these men personally "to determine if and when they will be available for duty with one of the armed forces." A written report is requested on each of the persons concerned. Secretary Johnson added that he will write personal letters to hospital administrators, asking them to bring the military's medical officer shortage to the attention of former A.S.T.P. and V-12 students on their staffs and who are not war veterans.

Federal Trade Commission Cites "Becker's Pills"

The Federal Trade Commission has ordered Adolfo Enrique Besosa, of New York City, trading as A. E. Besosa Co. and Becker Medicine Co., to stop representing that "Becker's Pills" have any curative effect in treatment of renal conditions. Charging that the product's advertising is false and misleading, the Federal Trade Commission stated that the pills "have no beneficial effects in counteracting or offsetting damage to the kidneys resulting from the excessive use of alcohol or resulting from any other cause." Besosa was directed to make it clear in any future advertisements that the juniper oil contained in "Becker's Pills" is a renal irritant which may dangerously aggravate an incipient pathologic condition. Also, that the drugs digitalis and squill, which the pills contain, tend to accumulate in the body and their use over a period of time may result in serious injury to heart and circulatory system.

FEDERAL VOLUNTARY HEALTH INSURANCE BILL

A Condensation Prepared by the Bureau of Legal Medicine and Legislation, American Medical Association, April 1, 1949

On March 30 there was presented to the Senate a bill, S. 1456, sponsored by Senator Hill, Alabama; Senator O'Conor, Maryland; Senator Withers, Kentucky; Senator Aiken, Vermont, and Senator Morse, Oregon, to authorize grants to enable states to survey, coordinate, supplement and strengthen their existing health resources so that hospital and medical care may be obtained by all persons. It was referred to the Senate Committee on Labor and Public Welfare.

Major Objective

While this bill seeks other ends, its major objective is, as explained by Senator Hill, to provide protection for persons of limited income by giving them service cards in voluntary prepayment plans which will entitle them to the same kind of medical and hospital care as those who are able to purchase such protection on a voluntary basis.

Determination of Eligibility for Benefits

A state plan must provide methods of determining the eligibility of persons to receive service cards which will entitle them to benefits, in accordance with regulations prescribed by the Surgeon General of the Public Health Service. Within six months after the enactment of the legislation, the Surgeon General, with the approval of the Federal Hospital and Medical Care Council and the Administrator of the Federal Security Agency, must prescribe by general regulation the general manner in which the state agency shall determine the eligibility of persons unable to pay subscription charges for medical and hospital care. The determination of eligibility must be made, so far as possible, in advance of the need for medical and hospital care.

Method of Qualifying for Benefits

A state in its plan must provide for the issuance from time to time by the appropriate agency or agencies designated by the state of service cards of participating nonprofit prepayment plans for medical and hospital care to all persons who are certified as unable to pay all or part of the subscription charges of prepayment plans for such care, whether or not in immediate need of care, which will entitle such persons to needed hospital and medical care.

Benefits to be Provided

Such types of medical and hospital care are to be furnished to holders of service cards as may be required by general regulations prescribed by the Surgeon General with the approval of the Federal Council and the Administrator of the Federal Security Agency. This provision is qualified by the definition of the term "hospital and medical care" contained in the bill which declares it to mean surgical, obstetric and medical services, furnished in a hospital, and hospital services incident thereto not in excess of sixty days in any year, and including diagnostic and outpatient clinic services furnished in a hospital or in a diagnostic clinic. The term "hospital" is defined, incidentally, to include a diagnostic clinic.

Method of Payment for Benefits

A state plan must provide for satisfactory contracts or arrangements so that following the admission of each person having a service card to a hospital the nonprofit prepayment plan will accept liability for payment of all essential services in the same manner as in the case of its regular subscribers, and that payments for such medical and hospital care by the plan will be on a basis mutually agreeable to participating physicians and hospitals and the state agency or regional authority concerned. Nonprofit prepayment plans will be reimbursed by the state agency for the full amount of the payments thus made plus such reasonable administrative expenses as may be mutually agreed on.

Administration

The Surgeon General will administer the provisions of the bill on the federal level with the aid of a Federal Hospital and Medical Care Council of which he is to be chairman. Of the other ten members, to be appointed by the Administrator of the Federal Security Agency, four are to be persons who are outstanding in fields pertaining to medical and hospital care, two of whom are to be doctors of medicine and two hospital administrators; two members will be persons experienced in the administration of voluntary prepayment plans for medical and hospital care, and four will represent the consumers of medical and hospital care who are familiar with the need for medical and hospital care in rural or urban areas. The Surgeon General will be authorized to make such administrative regulations and *perform such other functions as he finds necessary to carry out* the provisions of the program.

On a state level, the bill provides that a state plan must designate a single state agency as the sole administrative agency and must give assurance that that agency will have authority to carry out the plan. The state administrative agency, the bill suggests, may be the same agency designated to administer the provisions of the Hospital Survey and Construction Act. A state plan must provide for a Hospital and Medical Care Authority within each of the regions into which the state has been or will be divided under the Hospital Survey and Construction Act, or by other means. Such Authority, composed of persons within the region, must include representatives of nongovernment organizations or groups, of state and local agencies, concerned with the utilization of hospitals, including representatives of medical associations, hospital associations, voluntary prepayment plans for medical and hospital care and representatives of the consumers of medical and hospital care who are *familiar with the need for such care in urban or rural areas.*

A state plan must also provide for the designation of a State Hospital and Medical Care Council. The head of the state administrative agency will serve as chairman of the Council and the other ten members must at the time of appointment be members of the regional Authorities and must possess qualifications identical with those required to be possessed by members of the federal Council. Presumably the state Council as well as the regional Authorities will advise the state administrative agency with respect to the administration of the program.

Surveys

A state plan must contain provisions for four surveys. One is to be made of existing diagnostic facilities and a program must be submitted for providing additional necessary diagnostic services and for making them available to all persons in the state. A second relates to existing facilities, services and financing for the care of mental, tuberculous, chronic disease and other patients hospitalized for long periods, and here again a program must be submitted for providing any needed additional facilities. A third survey must be made of areas in the state which are unable to attract practicing physicians and a recommendation must be made of methods for encouraging physicians to locate in such needy areas. The fourth survey will be of existing enrolment in participating voluntary prepayment plans and a plan must be developed for stimulating and encouraging enrolment in such plans by all persons able to pay subscription charges, with emphasis on employer participation and on enrolment of persons in rural areas.

Payroll Deductions

A plan must provide for payroll deductions of subscription charges of voluntary prepayment plans for medical and hospital care *for each employee, and his dependents,* of state or political subdivisions who request such deduction. Another section of the bill provides for a similar payroll deduction, on request, for officers and employees of the United States, including members of the armed forces.

State Plans in General

A state desiring to participate in this program must submit a plan for the approval of the Surgeon General. It must provide, in addition to the provisions previously mentioned, that it must be in effect in all political subdivisions of the state and, if administered by them, be mandatory upon them. It must provide, too, for over-all financial participation by the state in a total amount at least equal to 50 per cent of that portion of the total amount expended under the state plan during any quarter, exclusive of the amount allotted by the federal government. This provision seems to imply that a part of state funds will be contributed by its political subdivisions. Assurance must be given, too, that federal funds allotted will be used to supplement total payments made by the state and its political subdivisions and not as a substitute for such payments.

The methods of administration of a state plan, including methods relating to the establishment and maintenance of personnel standards on a merit basis, must comply with such regulations as the Surgeon General may prescribe, except that the Surgeon General will exercise no authority with respect to the selection, tenure of office or compensation of any person employed in accordance with such methods. Reports must be made to the Surgeon General from time to time. Safeguards must be established which restrict the use or disclosure of information concerning recipients to purposes directly connected with the administration of medical and hospital care under the state plan. A state plan must provide that a person receiving benefits shall not be identified as a person accepting assistance at the time of receiving care and that the person shall not be provided a separate grade or classification of care because of his accepting assistance. A regional Hospital and Medical Care Authority must encourage coordination of all health facilities and services in the region, both voluntary and government, and must recommend means for their effective utilization in making medical and hospital care available to all persons in the region.

If any person drawing unemployment compensation is enrolled in a participating voluntary prepayment plan for medical and hospital care, the state plan must provide that pro rata subscription charges in such plan for such person and his dependents shall be paid, out of funds available for medical and hospital care, for the time during which any such person is in receipt of unemployment compensation, such payment of subscription charges to be by way of direct payment to the plan either for the period of unemployment or, if subscription charges have been paid in advance, by way of extension of the period of protection of the plan for the period of unemployment, as may be prescribed by state law. And, finally, the state agency must from time to time review the state plan and submit to the Surgeon General any modification which it considers necessary.

If a state plan complies with the specifications contained in the bill it must be approved by the Surgeon General. If disapproved, the state agency, on request, may be afforded an opportunity for hearing before the Federal Hospital and Medical Care Council.

Veterans

The bill provides that nothing in it shall modify obligations assumed by the federal government under other statutes for the medical and hospital care of veterans or other presently authorized recipients of medical and hospital care under federal programs.

Payment to States and Financing

Federal appropriations will be authorized for such sums as may be necessary. From such sums there will be paid to each state with an approved plan an amount, which shall be used exclusively for medical and hospital care to persons unable to pay subscription charges, equal to the federal percentage of the total sums expended or estimated to be expended during a quarter under the state plan. In addition, an amount will be paid to the state equal to one half of the total of the sums expended for the proper and efficient administration of the state plan, as determined by the Surgeon General.

An estimate will be made by the Surgeon General of the amount to be paid to the state for each quarter. This estimate will be based on a report filed by the state containing its own estimate of the total sum to be expended. This report must state the amount appropriated or made available by the state and by its political subdivisions for expenditures in the quarter. If such amount is less than the state's proportionate share of the total sum of the estimated expenditures, the source or sources from which the difference is expected to be derived must be stated. The Surgeon General also will base his estimate on records showing the number of persons in the state unable to pay subscription charges.

The federal percentage for any state will be 100 per cent less that percentage which bears the same ratio to 50 per cent as the per capita income of the state bears to the per capita income of the continental United States, excluding Alaska. The federal percentage will, however, in no case be more than 75 per cent or less than 33½ per cent. For Alaska and Hawaii, the federal percentage will be 50 per cent. For Puerto Rico, the federal percentage will be 75 per cent.

State Control Assured

Except as otherwise specifically provided, the bill declares that nothing in it shall be construed as conferring on any federal officer or employee the right to exercise any supervision or control over the administration, personnel, maintenance or operation "of any hospital utilized for furnishing hospital and medical care" pursuant to the provisions of the title.

Miscellaneous General Regulations

The Surgeon General, with the approval of the Federal Council and the Administrator of the Federal Security Agency will be authorized to prescribe general regulations dealing with general standards for participation in this program of voluntary prepayment plans for medical and hospital care, general standards for participation of nonprofit prepayment plans, the general manner in which the state agency shall stimulate and assist in enrolling the population in voluntary prepayment plans for hospital and medical care, and general methods of administration of the state plan by the designated state agency, subject to the restriction previously noted.

Sponsors Express Points of View on Bill

At the time this bill was introduced, Senator Hill, Senator Aiken and Senator O'Conor spoke in favor of it. Senator Hill in a mimeographed release said in part as follows:

"The Voluntary Health Insurance Bill we are introducing today will perform the same service for financing hospital and medical care that the Hill-Burton Hospital Survey and Construction Act is now doing in the building of new hospitals.

"We know that much remains to be done, but already the Federal government has acted in many ways to meet its responsibilities for improving and safeguarding the health of our people. We have done much to promote research. We are assisting in the construction of hospitals and health centers. We recognize that Federal aid is necessary in the education of doctors and nurses. I have introduced in this Congress, on behalf of myself and some of my colleagues, a bill to assist in the expansion and improvement of local public health units.

"But for more than ten years we have not been able to agree on the best method of financing hospital and medical care to the individual.

"We have had extensive hearings on a compulsory health insurance program and discussions both in and out of Congress. We have had many proposals and blue prints and 'cures' suggested for the establishment of a completely new system of financing hospital and medical care for our people.

"But a compulsory system of health insurance carries within it the danger of uprooting and destroying the entire system of medical practice in this country.

"We believe that the present system of medical care has been too valuable, too effective and too useful through the years, to throw it aside for a new system which might not work. We believe it is the course of wisdom first to examine our existing health and hospital and medical resources, then to proceed with the building and strengthening of them where that is necessary to bring adequate health care to all the people.

"The last thing we want in this country is an abundance of poor hospitals and poor medical care. Our existing system has produced a quality of care which is the equal of any that has been developed anywhere in the world. The reason it has grown—and continues to grow—is that it has grown naturally. You cannot build a tree. Our problem is to take our existing system and continue to make it bigger and better."

. . . .

"The fact is that while we have been debating the pros and cons of a complete new system of Federal compulsory health insurance, the voluntary agencies already in the field have gone quietly ahead to provide protection against the costs of hospital and medical care to nearly a third of our population. In 1939 when the first compulsory health insurance bill was introduced, the Blue Cross plans for hospital care had only 3,000,000 people enrolled. Today they protect more than 33,000,000. The Blue Shield plans for medical care have enrolled about 10,000,000. And commercial insurance companies have enrolled considerable numbers. A recent survey shows that on December 31, 1947, an estimated 52,584,000 individuals were protected by voluntary hospital expense coverage; 26,247,000 individuals had voluntary surgical expense coverage; nearly 9 million had medical expense coverage; and an estimated total of 31,224,000 of our 58 million employed civilians were insured under some form of voluntary protection against loss of income due to sickness or accident.

"Here is a voluntary movement which cannot be ignored if we believe there is a logical place in our American way of life for the voluntary system."

Coming Medical Meetings

Alabama, Medical Association of the State of, Montgomery, April 19-21. Dr. Douglas L. Cannon, 519 Dexter Ave., Montgomery 4, Secretary.

American Association of Anatomists, Philadelphia, April 13-15. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

American Association of Genito-Urinary Surgeons, White Sulphur Springs, W. Va., Greenbrier Hotel, May 9-11. Dr. Norris J. Heckel, 122 S. Michigan Ave., Chicago 3, Secretary.

American Association of Pathologists and Bacteriologists, Boston, April 15-16. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Association of the History of Medicine, Lexington, Ky., May 23-24. Dr. Benjamin Spector, 416 Huntington Ave., Boston 15, Secretary.

American Association on Mental Deficiency, New Orleans, Hotel Roosevelt, April 27-30. Dr. Neil A. Dayton, Box 51, Mansfield Depot, Conn., Secretary.

American Broncho-Esophagological Association, Chicago, Drake Hotel, April 18-19. Dr. Edwin N. Broyles, 1100 N. Charles St., Baltimore 1, Secretary.

American College of Allergists, Chicago, April 14-17. Dr. Fred W. Wittich, 423 LaSalle Medical Bldg., Minneapolis 2, Secretary.

American Dermatological Association, Hot Springs, Va., May 23-26. Dr. Louis A. Brunsting, 102 Second Ave. S.W., Rochester, Minn. Secretary.

American Gastro-Enterological Association, Atlantic City, Claridge Hotel, June 3-4. Dr. Dwight L. Wilbur, 655 Sutter Street, San Francisco 2, Secretary.

American Goiter Association, Madison, Wis., Hotel Loraine, May 26-28. Dr. Thomas C. Davison, 478 Peachtree St., N.E., Atlanta 3, Ga., Secretary.

American Laryngological Association, New York, May 16-17. Dr. Louis H. Clerf, 1530 Locust St., Philadelphia, Secretary

American Laryngological, Rhinological and Otological Society, Chicago, Drake Hotel, April 18-20. Dr. C. Stewart Nash, 277 Alexander St., Rochester 7, New York, Secretary.

American Ophthalmological Society, Hot Springs, Va., The Homestead, June 2-4. Dr. Maynard C. Wheeler, 30 W. 59th St., New York, Secretary.

American Orthopedic Association, Colorado Springs, May 18-21. Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secretary.

American Otological Society, New York, May 18-19. Dr .Gordon D. Hoople, 713 E. Genesee St., Syracuse, N. Y., Secretary.

American Pediatric Society, Atlantic City, May 5-6. Dr. Henry G. Poncher, 1819 W. Polk St., Chicago 12, Secretary.

American Physiological Society, Detroit, April 19-22. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D C., Executive Secretary

American Proctologic Society, Columbus, Ohio, May 31-June 4. Dr. W. Wendell Green, 1838 Parkwood Ave., Toledo 2, Ohio, Secretary.

American Psychiatric Association, Montreal, Canada, May 23-27. Dr. Leo H. Bartemeier, General Motors Bldg., Detroit 2, Secretary.

American Society for Clinical Investigation, Atlantic City, May 2. Dr. Paul B. Beeson, Grady Hospital, Atlanta 3, Georgia, Secretary.

American Society for Experimental Pathology, Detroit, April 18-22. Dr. Frieda S. Robscheit-Robbins, 260 Crittenden Blvd., Rochester, N. Y., Secretary.

American Society for Pharmacology and Experimental Therapeutics, Detroit, April 18-22. Dr. Harvey B. Haag, Medical College of Virginia, Richmond 19, Secretary.

American Society for Research in Psychomatic Problems, Atlantic City, Chalfonte-Haddon Hall, April 30-May 1. Dr. Sydney G. Margolis, 714 Madison Ave., New York 24, Executive Secretary.

American Society of Biological Chemists, Detroit, April 17-22. Dr. Otto A. Bessey, 1853 W. Polk St., Chicago 12, Secretary.

American Surgical Association, St. Louis, April 20-22. Dr. Nathan Womack, University of Iowa, Iowa City, Secretary.

American Therapeutic Society, Atlantic City, June 2-5. Dr. Oscar B. Hunter, 915 Nineteenth St. N.W., Washington, D. C., Secretary.

American Urological Association, Los Angeles, Hotel Biltmore, May *16-19. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn.*, Secretary.

Arizona State Medical Association, Tucson, May 8-10. Dr. Frank J. Milloy, 15 E. Monroe St., Phoenix, Secretary.

Arkansas Medical Society, Little Rock, April 14-16. Dr. William R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Association for the Study of Internal Secretions, Atlantic City, June 3-4. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary.

Association of American Physicians, Atlantic City, May 3-4. Dr. Henry M. Thomas Jr., 1201 N. Calvert St., Baltimore 2, Secretary.

California Medical Association, Los Angeles, May 8-11. Dr. L. Henry Garland, 450 Sutter St., San Francisco 8, Secretary.

Connecticut State Medical Society, New Britain, State Teachers' College, May 3-5. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.

Federation of American Societies for Experimental Biology, Detroit, April 18-22. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Secretary.

Florida Medical Association, Belleair, April 10-13. Dr. Robert B. McIver, 111 West Adams St., Jacksonville, Secretary.

Georgia, Medical Association of, Savannah, Hotel De Soto, May 10-13. Dr. Edgar D. Shanks, 478 Peachtree St., N.E., Atlanta, Secretary.

Hawaii Territorial Medical Association, Honolulu, May 5-8. Dr. Harry L. Arnold Jr., 510 S. Beretania St., Honolulu, Secretary.

Illinois State Medical Society, Chicago, Palmer House, May 16-18. Dr. Harold M. Camp, 224 S. Main St., Monmouth, Secretary.

International Congress *on Rheumatic Diseases, New York, Hotel Waldorf-Astoria*, May 30-June 3. Dr. Philip S. Hench, Mayo Clinic, Rochester, Minn., Chairman, American Committee.

Io[illegible] Des Moines, April 18-21. Dr. Allan B. [illegible]'s Moines 9, Secretary.

Ka[illegible]a, May 9-12. Dr. D. D. Vermillion, 512 [illegible] Secretary.

Louisiana State Medical Society, New Orleans, May 5-7. Dr. P. T. Talbot, 1430 Tulane Avenue, New Orleans 13, Secretary.

Maryland, Medical and Chirurgical Faculty of the State of, Baltimore, April 26-27. Dr. George H. Yeager, 1211 Cathedral St., Baltimore 1, Secretary.

Massachusetts Medical Society, Worcester, May 24-27. Dr. H. Quimby Gallupe, 8 Fenway, Boston 15, Secretary.

Medical Library Association, Galveston, Texas, April 10-14. Miss Mildred R. Crowe, Medical College of Alabama Library, Birmingham 5, Ala., Secretary.

Minnesota State Medical Association, St. Paul, Municipal Auditorium, May 9-11. Dr. B. B. Souster, 496 Lowry Medical Arts Bldg., St. Paul 2, Secretary.

Mississippi State Medical Association, Biloxi, May 10-12. Dr. T. M. Dye, Box 295, Clarksdale, Secretary.

National Tuberculosis Association, Detroit, May 2-6. Dr. H. Stuart Willis, 1790 Broadway, New York 19, Secretary.

Nebraska State Medical Association, Omaha, Hotel Paxton, May 2-5. Dr. R. B. Adams, 1315 Sharp Building, Lincoln 8, Nebraska, Secretary.

New Jersey, Medical Society of, Atlantic City, Hotel Ambassador, April 25-28. Dr. Earl L. Wood, 315 W. State St., Trenton 8, Secretary.

New Mexico Medical Society, Roswell, May 5-7. Dr. H. L. January, 221 W. Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, Buffalo, Hotel Statler, May 2-6. Dr. Walter P. Anderton, 292 Madison Ave., New York 17, Secretary.

North Carolina, Medical Society of the State of, Pinehurst, The Carolina, May 9-11. Dr. Roscoe D. McMillan, P. O. Box 232, Red Springs, Secretary.

North Dakota State Medical Association, Minot, May 14-17. Dr. O. A. Sedlak, 702 First Ave. S., Fargo, Secretary.

Ohio State Medical Association, Columbus, April 19-21. Mr. Charles S. Nelson, 79 E. State St., Columbus 15, Executive Secretary.

Oklahoma State Medical Association, Tulsa, Mayo Hotel, May 15-19. Mr. R. H. Graham, 210 Plaza Court Bldg., Oklahoma City, Secretary.

Rhode Island Medical Society, Providence, May 11-12. Dr. Morgan Cutts, 106 Francis St., Providence 3, Secretary.

Society of American Bacteriologists, Cincinnati, May 15-20. Dr. John Blair, Hospital For Joint Diseases, New York, Secretary.

South Dakota State Medical Association, Yankton, May 22-24. Dr. Roland G. Mayer, 22½ S. Main St., Aberdeen, Secretary.

Southeastern Surgical Congress, Biloxi, Miss., May 23-26. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Ga., Secretary.

Southern Branch, American Public Health Association, Dallas, Texas, Baker Hotel, April 14-16. Dr. George A. Denison, 600 S. Twentieth St., Birmingham, Ala., Secretary.

Tennessee State Medical Association, Chattanooga, April 12-14. Dr. W. M. Hardy, 706 Church Street, Nashville 3, Secretary.

Texas, State Medical Association of, San Antonio, May 2-5. Dr. Harold Williams, 700 Guadalupe St., Austin, Secretary.

Western Association of Industrial Physicians and Surgeons, Los Angeles, Hotel Biltmore, May 7. Dr. Christopher Leggo, Crockett, Calif., Secretary.

Western Branch of American Public Health Associaiton, Los Angeles, Hotel Biltmore, May 30-June 1. Mr. Walter S. Mangold, University of California, Berkeley, Calif., Secretary.

Medical Legislation

STATE LEGISLATION

California

Bill Introduced.—A. 3099 proposes that the required physical **examination of school teachers** shall include an x-ray of the lungs and a skin test recognized by the American Medical Association.

Colorado

Bill Introduced.—S. 614 proposes enabling legislation for the incorporation of **nonprofit** hospital and **medical and surgical care plan** corporations.

Idaho

Bill Enacted.—H. 290 has become chapter 208 of the Laws of 1949. It authorizes county boards to levy a special tax to be used solely and exclusively for **preventive health services.**

Michigan

Bills Introduced.—S. Con. Res. 19 proposees to memorialize the Congress of the United States not to adopt ***legislation relative to socialized medicine.*** S. 101, to amend the workmen's compensation act, proposes to include **dental care** to injured employees when necessary. S. 192 proposes to extend the benefits of the **privileged communications** statute to physicians and their patients.

Missouri

Bill Introduced.—*H. 226 proposes the creation of a* ***naturopathic examining board*** and defines naturopathy as that science, art or system of diagnosis and treatment of diseases and prevention of human ailments through the use of natural and physical agents.

Oklahoma

Bill Introduced.—S. 211 proposes to require institutions requiring for the effective carrying on of its scientific or educational activities the **use of live dogs and cats** to apply to the state board of health for a license to obtain animals from dog pounds.

Washington

Bills Enacted.—A simple House resolution was enacted March 10, 1949 which resolved that the **President of the United States be commended** for his courageous fight in behalf of the health of the people of the country. H. 329 has become chapter 204 of the Laws of 1949. It makes it an act of **unprofessional conduct** for any person licensed to practice medicine and surgery, drugless treatment in any form, or dentistry to accept any **rebate, refund, commission** or unearned discount whether in the form of money or otherwise as compensation for referring patients to any person, firm, corporation or association.

GOVERNMENT SERVICES

ARMY

MEDICAL SERVICE CORPS

In the presence of eminent members of scientific societies, Lieut. Col. Charles S. Gersoni and Majors Raymond J. Karpen and John V. Painter were sworn in March 13 as the first appointed Assistant Chiefs of the Medical Service Corps. In addition to Col. Othmar F. Goriup, Chief of the Corps, and other executives of the Surgeon General's Office, the following were present: Col. Michael J. Blew, M.S.C., Reserve; Francis B. Elder, engineering associate, American Public Health Association; Robert Fischelis, secretary, American Pharmaceutical Association; Ernest Little, president, American Pharmaceutical Association; Norman Loffer, president, American Society of Professional Biologists; F. A. Moulton, of the American Association for the Advancement of Science; Leland Parr, executive secretary, American Bacteriological Association; Paul Robbins, executive secretary, National Society of Professional Engineers; Joseph F. Sadusk, executive director, Committee on Medical Sciences of the Research and Development Board; George E. Taylor, assistant secretary, American Chemical Society, and Dael Wolfle, executive secretary, American Psychological Association.

The new Assistant Chiefs will serve as respective chiefs of the three sections of the corps: Colonel Gersoni as Chief of the Medical Allied Sciences Section; Major Karpen as Chief of the Sanitary Engineering Section, and Major Painter as Chief of the Pharmacy, Administration and Supply Section.

The Medical Service Corps was established by the Eightieth Congress on Sept. 7, 1947. The corps consists of commissioned specialists in fields allied to medicine: aviation psychologists, bacteriologists, biochemists, clinical nutritionists, optometrists, parasitologists, pharmacists, physiologists, psychiatric social workers, psychophysiologists, sanitary engineers, serologists and toxicologists. Establishment of the corps was necessary to furnish these professional skills in order that the Army might continue to provide medical care equal to, or better than, the medical care of civilian life.

OFFICERS ACCEPTED FOR ADVANCED TRAINING

The following Medical Department officers have been accepted for advanced training by the civilian schools and hospitals indicated:

Name	Institution	Subject
Col. Charles L. Leedham	University of Pennsylvania, Philadelphia	Internal medicine
Col. Albert A. Biederman	Massachusetts General Hospital, Boston	Internal medicine
Capt. Edward J. Lorenze	Columbia University, New York	Physical medicine
First Lieut. James W. Mankin	Grady Memorial Hospital, Atlanta, Ga.	Residency in pathology
First Lieut. Joseph R. Newton	Salt Lake County General Hospital, Salt Lake City	Residency in pediatrics
First Lieut. Davis A. Baltz	Memorial Hospital, Wilmington, Del.	Residency in general surgery
First Lieut. Howard J. Brown	University Hospitals, Cleveland	Intern training
First Lieut. Paige B. Follo	University Hospital, Ann Arbor, Mich.	Residency in medicine
First Lieut. Charles B. Smith	Psychopathic Hospital, Iowa City, Iowa	Residency in psychiatry
First Lieut. Leonard W. Melander	Providence Hospital, Detroit	Intern training

CERTIFIED BY SPECIALTY BOARDS

The following colonels in the Regular Army Medical Corps have recently been certified by the American Specialty Boards indicated: Aubrey L. Bradford (internal medicine); Robert T. Gants (general surgery); William W. Nichols (general surgery), and Carl W. Tempel (internal medicine).

MALIGNANT MELANOMA

The Army Institute of Pathology, Washington, D. C., reports that there are now on hand for investigation about 23,000 enucleated eyes, including 2,000 with malignant melanoma, and more than 5,000 tumors of the urinary bladder. This material is available for study and statistical analysis.

NAVY

NOMINATED FOR POSTGRADUATE INSTRUCTION

The Surgeon General's office reports that the following Navy Medical officers have been nominated to receive postgraduate instruction: Comdr. Hubert L. Anderson, Lake Benton, Minn., residency in surgery at the Naval Hospital, Long Beach, Calif.; Comdr. Stephen J. Ryan, Providence, R. I., residency in ophthalmology at the Boston City Hospital, Boston; Lieut. (jg) Preston H. Bandy, Gallatin, Tenn., residency in anesthesiology at the Naval Hospital, Bethesda, Md.; Lieut. (jg) Jack C. Berger, Oak Park, Ill., residency in surgery at Presbyterian Hospital, Chicago; Lieut. (jg) Robert E. Dent, Bowling Green, Ky., residency in surgery at the Naval Hospital, St. Albans, N. Y., and Lieut. (jg) William G. Krech, Paterson, N. J., residency in surgery at the Naval Hospital, Chelsea, Mass.

ACTIVE SERVICE FOR RESERVE OFFICERS

The Naval Air Reserve Training Command offers medical officers in the Naval Reserve an opportunity to serve in an active duty status at Naval air stations located in Birmingham, Ala.; Columbus, Ohio; Denver; Grosse Ile, Mich.; Jacksonville, Fla.; Lincoln, Neb.; Niagara Falls, N. Y.; St. Louis, and Seattle.

In addition to the medical officer's base pay and allowance for subsistence and quarters, a remuneration of $100 per month will be paid to accepted applicants who agree to remain on active duty for a period of one year or longer. The advantages offered by this opportunity may particularly appeal to those who are awaiting residencies or who are undecided as to their future plans. Applications may be submitted specifying the date which the applicant desires to begin, as well as terminate, active duty; he may designate choice of duty stations in order of preference. Applications for periods of less than one year will receive the same consideration as those for longer periods. A letter addressed to Staff Medical Officer, Naval Air Reserve Training Command, Naval Air Station, Glenview, Ill., will bring full particulars without obligation.

PERSONALS

Commander Horace D. Warden, M.C., was recently assigned as medical officer to the Presidential Yacht *Williamsburg*. Dr. Warden is a graduate of the University of Montana and Rush Medical College, Chicago. During the recent war, he was awarded the Bronze Star and the Purple Heart, having been seriously wounded at Okinawa aboard the U. S. S. *Terror*, which was hit by a Japanese suicide plane.

Lieutenants (jg) DuWayne D. Gadd of Saginaw, Mich., and Tom N. Mullis of Los Angeles have been nominated for their first active duty in the Reserve Corps and will go to residencies in neurology and obstetrics and gynecology at the George F. Geisinger Memorial Hospital, Danville, Pa., and the Naval Hospital, Philadelphia, respectively.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

COLORADO

Postgraduate Course in Industrial Medicine.—A postgraduate course in industrial medicine will be given at the University of Colorado Medical Center, Denver, May 19-20, sponsored by the Colorado State Medical Society and the University of Colorado School of Medicine, Denver. The course will orient physicians to principles involved in the practice of industrial medicine. The program consists of didactic lectures and demonstrations to be conducted by members of the faculty and practicing physicians. Admission to this course is open to all physicians who are members of their constituent medical societies. Tuition will not be charged, but a registration fee of $10 is required of all applicants accepted. Inquiries should be directed to Frank Princi, M.D., director of the Division of Industrial Medicine, University of Colorado Medical Center, Denver.

ILLINOIS

Mental Health Week in Illinois.—State plans for Mental Health Week in Illinois April 24-30, part of a nationwide observance sponsored by the U. S. Junior Chamber of Commerce, are being made by the Mental Health Advisory Committee of the Illinois Department of Public Health. Included in the committee are representatives of the Illinois State Medical Society, Illinois Society for Mental Hygiene, Illinois Department of Public Welfare, the U. S. Public Health Service, Illinois Psychiatric Society and the Cook County Department of Public Health. Dr. Rudolph G. Novick, Chicago, is chairman of Mental Health Week in Illinois.

Chicago

Set Dates for Postgraduate Courses.—The Chicago Medical Society will present two postgraduate courses during the year at Thorne Hall, Northwestern University Medical School campus: Cardiorenal and Peripheral Vascular Diseases, October 17-22, and Obstetrics, Endocrine-Gynecology and Sterility, October 24-29.

Award Capps Prize.—The Institute of Medicine of Chicago announces that the annual Joseph A. Capps prize of $400 for medical research, founded by Dr. and Mrs. Edwin R. LeCount, has been awarded for 1948 to Dr. Hushang Javid, University of Illinois College of Medicine, 1946, for his study on a new technic for permanent pancreatic fistula.

Appointments at Loyola University.—Stritch School of Medicine of Loyola University has appointed Dr. George J. Rukstinat, attending pathologist at Cook County, Loretto and Holy Cross hospitals, as clinical professor of pathology, and Dr. Louis F. Plzak, chairman of the department of surgery at Loretto Hospital, as clinical assistant professor of surgery. Dr. Fred R. Zeiss of the Little Company of Mary Hospital was appointed clinical associate in the department of bone and joint surgery and Hugh J. McDonald, Sc.D., professor of physical chemistry and chairman of the department of biochemistry. Dr. McDonald has been professor of chemistry at the Illinois Institute of Technology.

Navajo Crippled Children Treated in Chicago.—Six Navajo crippled children from Arizona and New Mexico in need of specialized medical care and hospitalization will be treated this year at the Home for Destitute Crippled Children, which is affiliated with the University of Chicago Clinics. A mercy project undertaken by the home to alleviate the suffering of those with the most difficult and complicated cases among the more than 500 crippled Navajo children, the service is an extension of the home's current year's program for 24 Alaskan crippled children. Last April the Home for Destitute Crippled Children made provisions for 2 Alaskan children from the Division of Crippled Children of Alaska to be sent to Chicago each month .for surgical and medical attention. Fourteen Alaskan children have been sent to date, and 6 have been returned to their homes. The Home for Destitute Crippled Children's project will help to meet the emergency situation of the Navajo crippled children, according to M. M. Stewart, general superintendent of the Navajo service of the Office of Indian Affairs of the Department of Interior. Some crippled Indian children living in Arizona have been cared for through the Indian Service hospital at Phoenix, but the state does not provide care for Navajos under the crippled children's division of the social security program. Services available include those of orthopedic surgeons, other physicians and dentists, provided entirely by the University of Chicago, free of charge, a graduate nursing service, a social service department, occupational therapists, a bedside teaching service provided by the Board of Education, and complete operating room, roentgenologic and laboratory services obtained from their respective departments in the university clinics.

IOWA

Cerebral Palsy Clinics.—The Iowa Society for Crippled Children and Disabled will conduct consultant clinics at the Cerebral Palsy Demonstration School in Des Moines for any patient afflicted with this condition. The clinic will be private in character; patients will not be seen except with a physician's referral, and the child's own physician will be requested to attend the clinic. A follow-up report will be made on the diagnosis of each patient. Parent counseling for a home training program will be outlined in the treatment of each child. Fees will be charged on a sliding scale in accordance with the family's ability to pay. Physicians with patients suffering from cerebral palsy may secure from the Iowa Society for Crippled Children and Adults, 2917 Grant Avenue, Des Moines 12, information regarding clinical services now available.

KANSAS

Dr. Schafer to Head Department of Surgery.—Dr. Paul W. Schafer, associate professor of surgery since last July and member of the faculty, University of Kansas School of Medicine, Kansas City, has been appointed chairman of the department of surgery effective July 1, succeeding Dr. Thomas G. Orr, head of surgery since 1924. Dr. Orr will remain professor of surgery but will be relieved of administrative duties. Dr. Schafer, a graduate of Ohio State University College of Medicine, Columbus, 1939, came to the University of Kansas School of Medicine in 1946 from the University of Chicago Clinics, where he had been an instructor in surgery.

KENTUCKY

First Mobile Medical Clinic.—The Jefferson County Fiscal Court has presented to the Louisville-Jefferson County Board of Health the first mobile medical clinic in Kentucky, a 30 foot trailer fully equipped as a doctor's office. Its services include examinations, immunizations, child health work and other preventive measures which are being maintained for the residents of outlying areas of the county where regular scheduled routes will be followed. A physician, a registered nurse and a driver compose the trailer staff. During its first month of operation, the "doctormobile" brought medical service to 400 persons.

Personals.—The new state public welfare commissioner, Dr. Addie M. Lyon, Frankfort, who was formerly head of Central State Hospital at Lakeland, was honored at a dinner meeting of the Committee on Institutions of the Louisville Council of Churches held in Louisville February 8. The subject of Dr. Lyon's talk was "Contributions of Laymen to Hospital Work." ——Dr. Bruce Underwood, state health commissioner, Dr. Emmet F. Horine, Louisville heart specialist, and Dr. Charles A. Vance, Lexington, president, Kentucky State Medical Association, have accepted membership on a Subcommittee on Health, along with twelve other subcommittees, under the Committee for Kentucky, the purpose of which is to formulate plans for the future of the state.

MARYLAND

Premedical Course in Biophysics.—To meet the need for trained persons in the field of biophysics, Washington College at Chestertown is offering a course designed primarily for premedical and medical technology students. The course deals with medical physics in clinical and pathologic physiology and with biotechnology in engineering design.

Record Low Mortality Rates in 1948.—According to the Bureau of Vital Statistics, a record low mortality rate was established in 1948 for influenza, pneumonia, infancy and tuberculosis. Over a ten year period influenza and pneumonia dropped from a death rate of 82.7 per 100,000 to 34.4, a 58.4 per cent decrease. Infancy rates dropped from 55.3 per 1,000 live births to 29.4 representing a 46.8 per cent decrease, and tuberculosis declined from 74.7 per 100,000 to 45.3, a 39.3 per cent decrease. Maternal deaths maintained the all-time low record of 1947, 0.9 per 1,000 live births. It declined from 1938, when the maternal death rate was 3.5, undoubtedly because of the intensive work of the committee on maternal and child welfare of the Medical and Chirurgical Faculty of Maryland. In cooperation with the Bureau of Child Hygiene, the committee has investigated every maternal death since 1925 and has cooperated closely with physicians in the prevention of maternal mortality.

MASSACHUSETTS

Cutter Lecture on Preventive Medicine.—Dr. James C. Spence, professor of child health, University of Durham, England, will deliver the Cutter Lecture on Preventive Medicine May 11, 5 p. m., at the Harvard Medical School, Boston, on "Preventive Medicine: The Role of Parents in Child Health." The lectures have been held since 1912. The medical profession, medical and public health students and others interested are cordially invited to attend.

University Appointment.—Dr. Oliver Cope, visiting surgeon at the Massachusetts General Hospital, has been appointed associate professor of surgery at the Harvard Medical School, Boston. Dr. Cope is a graduate of Harvard, 1928, and has since then been associated with the teaching of surgery there. He is director of a contract research with the Office of Naval Research, U. S. Navy. Dr. Cope has served as consultant to the U. S. Army in Germany and in 1948 was lecturer at the Swiss-American Center for Medical Exchange and Information.

MICHIGAN

Scarlet Fever Rises Sharply.—Scarlet fever is spreading throughout the state at the rate of 450 cases a week or about three times the usual rate, according to Dr. Frederick S. Leeder, Lansing, director of the Division of Disease Control, Records and Statistics of the Michigan Department of Health.

Reorganize State Health Department.—The Michigan Department of Health has been reorganized from thirteen bureaus and three groups into a cabinet type of organization with six divisions and one administrative group. The Bureaus of Venereal Disease and Tuberculosis Control have been combined into one division and the Bureaus of Disease Control and Records and Statistics into another. The Bureaus of Laboratories, Industrial Health and Engineering all became separate divisions. A Division of Local Health Services has been formed by combining the former Bureaus of Local Health Services, Public Health Dentistry, Maternal and Child Health and Public Health Nursing. This combination was expected to make more efficient use of state health services through the correlation of those bureaus which primarily work with local health departments and also to draw the local health departments into a more closely knit over-all plan of health protection. The six division directors report directly to the commissioner.

The administrative group, responsible directly to the commissioner through an administrative assistant, is made up of the former Bureaus of Finance and Education, along with Personnel, Law Enforcement and Communications groups. Dr. Heustis, state health commissioner, said he expects the new organization to coordinate the work of the department better and make it possible to provide more and faster service. Provision for an administrative assistant, rather than a deputy, makes it possible to substitute a person not medically trained to relieve the commissioner of routine administrative matters. It also makes possible direct contact of the commissioner and division directors without any buffer. Regular staff conferences will include not only the division directors but also the section chiefs.

MINNESOTA

Special Lectures.—Dr. Elexious T. Bell, head of the department of pathology at the University of Minnesota Medical School, Minneapolis, delivered the annual Clarence M. Jackson Lecture, sponsored by the Phi Beta Pi Fraternity, March 2 on "Pathology of Diabetes." On March 3 the George Chase Christian Cancer Lecture was given by Dr. Ira T. Nathanson, Boston, on "Hormonal Alteration of Advanced Carcinoma of the Breast."

State Association Sponsors Medical Press Conference.—The Minnesota State Medical Association sponsored a statewide medical press conference at Minneapolis April 8 to acquaint newspaper editors of the state with the medical profession's views against compulsory sickness insurance. A panel of ten including physicians and laymen answered questions from newspapermen. Speakers at the dinner in the evening were Irving Pflaum, foreign editor of the *Chicago Sun-Times,* and John L. Bach, director of press relations of the American Medical Association, Chicago. The expected attendance was 600. All Minnesota editors were invited to attend, and a doctor from each community was invited to bring a guest editor to the conference.

MISSOURI

Final Health Forum.—The Greene County Health Forum will present Dr. Robert Mueller, St. Louis, past president of the Missouri State Medical Association, as guest speaker at the final meeting of the forum April 21 at Clara Thompson Hall, Springfield. His paper, dealing with recent advances in medicine, will be "You Should Live Longer!"

NEW YORK

Dr. Graham to Receive Roswell Park Medal.—The Buffalo Surgical Society has awarded the Roswell Park Medal to Dr. Evarts A. Graham, professor of surgery at Washington University School of Medicine, St. Louis, for outstanding surgical achievement. Dr. Graham will give the Roswell Park Lecture May 5 at the Kleinhans Music Hall, Buffalo, at 9 p. m.

Postgraduate Courses in Disease of Heart and Vascular System.—The University of Buffalo School of Medicine in conjunction with the New York State Department of Health and with the approval of the Western New York Chapter of the American Heart Association will present courses in Diseases of the Heart and Vascular System April 18-23 and April 25-30 in Buffalo. Identical courses will be given during each period. Registration will be limited to two physicians from the city of Buffalo and two from each of the following counties: Erie, Niagara, Genesee, Chautauqua, Cattaraugus and Wyoming. The fee of $50 and a fellowship allowance of $10 a day to each physician will be paid by the state department of health. The registration fee of $10 must accompany application to the school of medicine and will be returned on acceptance.

Cornell Medical Alumni Honor Dr. McCann.—Dr. William S. McCann, professor of medicine at the University of Rochester School of Medicine and Dentistry and physician in chief at Strong Memorial-Rochester Municipal Hospitals, received the first annual Award of Distinction given by the Cornell University Medical College Alumni "in recognition of his notable achievements in medical science and education, and for his dynamic influence in the art and practice of medicine." Dr. McCann is a member of the class of 1915. He has filled various hospital and teaching appointments, including Cornell and Johns Hopkins. He also held the Arthur Tracy Cabot Fellowship in surgery at Harvard and a research fellowship from the Russell Sage Institute of Pathology. In 1924 he was appointed to the Charles A. Dewey Professorship of Medicine at the University of Rochester and to the hospital positions he now holds. The award ceremony was a part of the Alumni Day program at the New York Hospital-Cornell Medical Center March 24.

New York City

Columbia Raises Fees.—The Columbia University College of Physicians and Surgeons and the School of Oral and Dental Surgery will raise their tuition fees this fall from $600 to $750 a year. The increase is said to be due to heavy costs in medical education.

Jones Lecture.—Dr. C. Howard Hatcher, Chicago, will deliver the annual Sir Robert Jones Lecture May 12 at 8:30 p. m. at the Hospital for Joint Diseases on "Results of Treatment of Bone Sarcoma." The lecture will be part of a three day orthopedic alumni conference of the hospital May 12-14. The Sir Robert Jones Lectureship was established by the hospital in 1930 in honor of the surgeon who is considered by many to be the father of modern orthopedic surgery.

Seminar on Otolaryngology and Ophthalmology.—The New York Polyclinic Medical School and Hospital will hold a seminar on otolaryngology and ophthalmology April 25-29. A review of recent advances in the diagnosis and treatment of the more common disorders in the fields of the two specialties will be given through lectures, motion pictures and demonstrations. Members of the staff and visiting speakers will participate. Out of town guest speakers will be Drs. Norton Canfield, New Haven, Conn., James E. Landis, Reading, Pa., and Romeo A. Luongo, Philadelphia.

Residency in Neoplastic Diseases of Childhood.—Memorial Hospital, New York, has established a residency in pediatrics. The period of service is for a minimum of six months, and its purpose is to train the pediatrician in the diagnosis and management of neoplastic diseases in childhood. The resident will also participate in the research program in progress at the Sloan-Kettering Institute. Three months' credit toward pediatric residency training requirements has been approved by the American Board of Pediatrics. For particulars applicants may communicate with the director, Pediatric Service, Memorial Hospital, 444 East 68th Street, New York 21.

NORTH CAROLINA

Cancer Clinic at Durham Hospital.—The Durham Cancer Detection Center, fourth of its kind in the state, was opened at Watts Hospital January 20. The center was established through the cooperation of the State Health Board and the North Carolina chapter of the American Cancer Society.

All Counties to Have Health Departments.—As of July 1 this year, every county in North Carolina will have an organized public health department, according to Dr. John W. R. Norton, Raleigh, state health officer. On January 1 ninety-six counties had full time public health departments, and the remaining four counties have since that time set up or made provisions for establishing full time departments.

Appointments to Bowman Gray School of Medicine.—Dr. Parker R. Beamer, Washington University Medical School, St. Louis, has been appointed professor of microbiology and immunology and associate professor of pathology at the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, effective July 1. Dr. Richard L. Masland has been promoted to associate professor of neuropsychiatry in charge of neurology, and J. Maxwell Little, Ph.D., to the position of professor of pharmacology and associate professor of physiology. Dr. Katherine H. Anderson is now assistant professor of clinical pediatrics and Dr. Elizabeth Conrad is instructor in clinical pediatrics.

OHIO

Training Course in Cardiovascular Research.—A twelve month training course in the disciplines of cariovascular research for a limited number of qualified persons will be offered at Western Reserve University School of Medicine, Cleveland, with the support both of the American Heart Association and the National Heart Institute, U. S. Public Health Service. If the enrolment warrants, the course will begin July 1; otherwise September 1. Graduates and undergraduates in medicine or related sciences who are highly recommended and acceptable to the director, Dr. Carl J. Wiggers, and candidates able to support themselves or on fellowship grants from foundations or institutes are eligible. There are no tuition fees. The Division of Research and Fellowships of the National Institutes of Health is prepared to offer research fellowships for this training to acceptable candidates who require financial support. Enrolment will be limited to ten. For details address Dr. C. J. Wiggers, director of the department of physiology, Western Reserve University School of Medicine, Cleveland.

PENNSYLVANIA

Public Lectures on Cancer.—The University of Scranton in cooperation with the Lackawanna County Unit of the American Cancer Society is presenting a series of free public lectures on cancer. Each week, it is reported, several hundred Scranton residents attend the evening lectures by medical and educational authorities. The program has become so popular that two local radio stations rebroadcast the lectures.

Appointed Director of Rheumatic Heart Division.—Dr. Mary L. Richardson, Philadelphia, has been appointed chief of the Rheumatic Heart Division, Pennsylvania Department of Health. Dr. Richardson, a graduate of the University of Colorado School of Medicine, Denver, has been on the staff of St. Christopher's Hospital for Children in Philadelphia and has been chief resident and coordinator of medical services. During the past three years the state has established thirteen heart clinics where patients with a history of rheumatic fever or rheumatic heart disease may register for treatment.

Philadelphia

Annual Health Institute.—The Woman's Auxiliary to the Philadelphia County Medical Society will hold its nineteenth annual health institute April 12 in the auditorium of the medical society building in Philadelphia. Lectures will be given on "The Family and Public Health," "The Fife-Hamill Memorial Health Center," "Experiences with the Rooming-in Project of Baby with Mother" and two motion pictures, one on human growth and another on human reproduction. A panel discussion on the problem child will be conducted in the afternoon.

Comroe Memorial Lecture.—Dr. Ephraim Shorr of Cornell University Medical College, New York, gave the annual Bernard Comroe Memorial Lecture on "The Role of the Liver and Kidney in Circulatory Homeostasis" on April 8 at the Hospital of the University of Pennsylvania, Philadelphia. This is the annual lecture sponsored by the Kappi Pi Chapter of the Phi Delta Epsilon Fraternity at the university.

TEXAS

Texas Health Council.—Plans for organization of the Texas Health Council, a statewide association of the medical profession, allied groups and lay organizations, were completed by representatives of various groups meeting in Dallas March 13. The Texas Health Council plan was proposed by the board of trustees and subsequently approved by the executive council of the state medical association, and at that time Dr. George A. Schenewerk of Dallas, chairman of the committee on public relations, was designated to prepare a prospectus and initiate preliminary arrangements with the other groups for the organization. Representatives of the several participating groups will constitute a planning committee until the organization is completed. Groups invited to participate in the organization of the council are: doctors of medicine and dentists together with the auxiliaries of these groups, nurses, pharmacists; hospitals, medical service, insurance, utility, transportation, education and rural organizations; the newspapers and radio, and the clergy.

UTAH

Ogden Surgical Society Meeting.—The annual meeting of the Ogden Surgical Society will be held May 25-27 with headquarters at Hotel Ben Lomond, Ogden. Scientific sessions will be held in the Orpheum Theater. The society has invited all doctors of the intermountain region to attend without registration fee the three day scientific discussions. The following speakers will address the sessions: Drs. E. W. Alton Ochsner, New Orleans; Roger Anderson, Seattle; Charles W. Mayo and James T. Priestley, Rochester, Minn.; Willis J. Potts, Andrew C. Ivy and Paul W. Greeley, Chicago; Donald G. Tollefson, Los Angeles; Howard C. Naffziger, San Francisco; Alfred E. Maumenee Jr., San Francisco; Howard B. Sprague, Boston, and Lyon H. Appleby, Vancouver, B. C.

WASHINGTON

Spokane Surgical Society Meeting.—The annual meeting of the Spokane Surgical Society will be held at the Davenport Hotel April 9. The guest speaker at the banquet at 7 p. m. will be Dr. James T. Priestley, Rochester, Minn., who will speak on "Some Problems in Surgery of the Stomach and Duodenum."

WISCONSIN

Marquette's Spring Clinic.—Marquette University School of Medicine Alumni will hold a spring clinic at the Veterans Administration Hospital Auditorium May 13-14. Dr. Edward R. Krumbiegel, Milwaukee, commissioner of health of Milwaukee, will receive the annual alumni award.

Honorary Medical Fraternity Membership Awarded to Marquette.—Alpha Omega Alpha, national honorary medical society, awarded a chapter membership to the Marquette University School of Medicine, Milwaukee, at installation ceremonies April 4 in the medical school auditorium. Dr. John S. Hirschboeck, dean of the medical school, received the chapter charter from Dr. Walter L. Bierring, Des Moines, Iowa, national president. Thirteen Marquette students were received into the society.

Personal.—Conrad A. Elvehjem, Sc.D., dean of the graduate school of the University of Wisconsin Medical School, Madison, and chairman of the biochemistry department, has received a grant of $4,000 for research in nutrition from the Robert Gould Research Foundation, Cincinnati. Dr. Elvehjem was a recipient in 1943 of the Willard Gibbs Medal of the American Chemical Society.

ALASKA

Roentgen Examinations for All Hospital Patients.—The Alaska Tuberculosis Association has made arrangements to give roentgen examinations to all patients entering the Bishop Rowe General Hospital in Wrangell. The three month demonstration program is being carried out under the supervision of Dr. Duncan Chalmers of the Alaska Health Department.

PUERTO RICO

Birth Rate in Puerto Rico.—The Puerto Rican birth rate rose to 43.3 to each 1,000 for 1947. The net population increase for the year, according to official figures, was 63,000, representing 87,000 births against 24,000 deaths. The average family on the island numbers 5.3 as compared with 3.7 in continental United States. Population density is close to 635 for each square mile, almost as high as Rhode Island, for a territory smaller than Connecticut. Over a period of seven years infant mortality decreased from 113 to 71 for each 100,000. Stillbirths have been sharply reduced.

GENERAL

Change Harvey Lecture Date.—In order to avoid a conflict with the meeting of the Federation of American Societies for Experimental Biology, the date of the seventh Harvey Lecture, to be given by David Rittenberg, Ph.D., New York, has been changed to April 28.

U. S. Pharmacopoeial Convention.—The decennial meeting of the U. S. Pharmacopoeial Convention has been set for May 9, 1950 at the Hotel Statler, Washington, D. C. A preliminary conference, similar to the one held in 1940, will probably be held the preceding day. Credential forms for delegates will not be distributed until about Dec. 1, 1949, to be returned by March 1, 1950. For information address Adley B. Nichols, Secretary, 4738 Kingsessing Avenue, Philadelphia 43.

Dr. Huenekens Appointed Medical Director of Kenny Foundation.—Dr. Edgar J. Huenekens, chief of staff at Sister Elizabeth Kenny Institute and clinical professor of pediatrics at University of Minnesota Medical School, Minneapolis, has been appointed national medical director of the Kenny Foundation. In his new position with the foundation Dr. Huenekens will be in contact with medical leaders throughout the country with the aim of creating broader understanding of the Kenny concept and treatment of poliomyelitis.

Jessie Horton Koessler Fellowship.—The Institute of Medicine of Chicago announces that its Jessie Horton Koessler Fellowship for the aid of research in biochemistry, physiology, bacteriology or pathology will be available on September 1. The stipend is $500 a year with the possibility of renewal for one or two years. Applications will be received up to July 1, and should be sent in quadruplicate to Dr. Paul R. Cannon, chairman of the Committee on the Jessie Horton Koessler Fund, 950 East 59th Street, Chicago 37. Since there are no formal blanks, application should be made by letter.

Western Association Meeting on Industrial Medicine.—The Western Association of Industrial Physicians and Surgeons will hold its annual meeting at the Biltmore Hotel, Los Angeles, May 7. The morning will be devoted to a panel discussion of the state compensation laws. Afternoon speakers include:

Homer S. Elmquist, Los Angeles, Use of Wire in Inguinal Herniorrhaphy.
Ian G. MacDonald, Los Angeles, Occupation and Trauma in Relation to Cancer.
John E. Kirkpatrick, San Francisco, Injury vs. Gout.
Walter Z. Baro, Los Angeles, Industrial Head and Back Injuries as Seen from a Neurological and Psychiatric Viewpoint.

Broncho-Esophagological Association Meeting. — The annual meeting of the American Broncho-Esophagological Association will be held at the Drake Hotel, Chicago, April 18-19 under the presidency of Dr. Paul Holinger, Chicago. Those delivering papers by invitation include:

Edwin R. Levine, Chicago, Physiological Bronchial Changes Influencing Pulmonary Function.
E. W. Alton Ochsner, New Orleans, Surgery of the Esophagus.
Howard W. McCart, Toronto, Canada, Adenoma of the Trachea.

The banquet will be held in conjunction with the American Laryngological, Rhinological and Otological Society April 18 at 6:30 p. m. The speaker will be Dr. Warren H. Cole, Chicago.

Dr. Bayne-Jones Receives Bruce Memorial Medal.—At the convocation of the American College of Physicians March 30, Dr. Stanhope Bayne-Jones, president of the Joint Administration Board of the New York Hospital-Cornell Medical Center, received the James D. Bruce Memorial Medal. He was cited for his inspirational teaching at the Johns Hopkins University, the University of Rochester and Yale University, where he played an important part in shaping the careers of many young physicians. He was also cited for his contribution during the war as brigadier general in the medical corps of the Army and as deputy chief of preventive medicine in the Office of the Surgeon General.

Research in Spinal Cord Disease.—The National Paraplegia Foundation, sponsored by the Paralyzed Veterans of America, has established a limited number of fellowships for research in spinal cord disease and trauma and in the complications commonly associated with such disease or injury. These fellowships carry a minimum stipend of $3,000 per year and may be awarded to any candidate who has demonstrated a capacity for medical research and has outlined a program of meritorious study. The fellowships will be awarded by the Medical Advisory Committee and are open for award for the academic year 1949-1950. Application forms, obtained from the Chairman, Medical Advisory Committee, 1040-1232 West Michigan Street, Indianapolis 7, should be submitted to him not later than June 1.

Damon Runyon Clinical Research Fellowships.—The American Cancer Society announces the availability of Damon Runyon Clinical Research Fellowships, limited to men and women holding the M.D. degree. These fellowships are made possible through a grant from the Damon Runyon Memorial Fund for Cancer Research to the American Cancer Society, which administers the fellowships on recommendation of the Committee on Growth of the National Research Council. In most cases fellowships will provide a period of training in a hospital under the guidance of a qualified clinical investigator. However, they may be awarded to provide training in a basic science provided that such training is directed toward preparing the fellow for clinical cancer research. Applications may be submitted at any time. Initial awards will be made in time to permit the fellowships to begin July 1, 1949. Communications should be addressed to the Executive Secretary, Committee on Growth, National Research Council, 2101 Constitution Avenue, Washington 25, D. C.

International Cooperation in Cancer Research.—Transactions of the Fourth International Cancer Research Congress are in process of publication in five parts. The first part appeared in 1948 as no. 1, volume 6 of *ACTA; Union Internationale Contre le Cancer,* under the editorship of Dr. Joseph H. Maisin. It amounts to 267 pages of papers in English, French, German, Italian, Russian and Spanish. It is expected that the remaining ones will appear in rapid succession. The price for the complete Transactions is $25, that is, $5 for each of the five parts. Subscriptions should be sent as postal money orders to Dr. Joseph H. Maisin, 61 Voer des Capucins, Louvain, Belgium. Reprints of the papers published in the Transactions can be obtained from Dr. Maisin. It is suggested that those desiring reprints communicate directly with him.

The first annual meeting of the International Cancer Research Commission, established at the congress, will probably be held in Paris July 15-22. Further information can be obtained from the chairman, Dr. Ignacio Millan, Avenida Veracruz 69, México, D. F. Since its formation the commission, then consisting of one representative from each of forty nations, has been joined by Finland, Iceland, Israel and New Zealand. Negotiations are under way for Dr. Riojun Kinoshita to be appointed an "observer" for Japan. Invitations to the first annual meeting have been approved by the Mexican Government and will soon be dispatched by it through diplomatic channels to the member nations and to all others.

Deaths in Foreign Countries

Dr. John T. Conner, London correspondent of The Journal of the American Medical Association, died recently. He was more than fifty years ago a contributor to the *Medical Review* and was the editor in Great Britain of *The Hospital* and *The Clinical Journal.* For many years Dr. Conner was a regular contributor to the editorial columns of *The Lancet.* In his preparation for medicine he was for a while closely associated with Sir Jonathan Hutchinson. Dr. Conner had retired and at the time of his death was living with his son Ian, Vicar of All Hallows, Greenford.

Marriages

Edwin Hastings Mulford II, Little Falls, N. Y., to Miss Esther Davis Smith in Bridgeport, Conn., February 12.

Robert Harris McCarter, Boston, to Miss Dorothy Margaret Douglas of Wellesley Hills, Mass., February 19.

Oliver H. Timmins Jr., San Antonio, Texas, to Miss Joan James in Berkeley, Calif., February 15.

Luther Motier Mace, Beaufort, S. C., to Miss Doris Belle Harris in Norfolk, Va., February 12.

Edwin Paul Stabins, Watertown, N. Y., to Miss Maxine Deutsch in Richmond, Va., February 19.

Nathan Smith Davis Jr., Winnetka, Ill., to Miss Naomi Nichols of Kenosha, Wis., February 12.

Keehn W. Berry Jr., New Orleans, to Miss Murray Brown of Birmingham, Ala., March 1.

Robert R. Rector, Roanoke, Va., to Miss Evelyn Feagans, of Agricola, in McDowell, February 19.

John Stone Hooley, Rockville Centre, L. I., to Miss Betty Grunwald of Brooklyn, February 26.

Elmer Clinton Texter Jr., Detroit, to Miss Jane Starke Curtis of Richmond, Va., February 19.

Deaths

Max Minor Peet ⊕ professor of surgery at the University of Michigan Medical School, Ann Arbor, died March 25, aged 63, of heart attack. Dr. Peet was born in Iosco, Mich., Oct. 20, 1885. He received his degree in medicine from the University of Michigan Department of Medicine and Surgery in 1910, when he became an intern at the Rhode Island Hospital in Providence, serving until 1912. He was a Robert Robinson Porter fellow in research medicine at the University of Pennsylvania School of Medicine in Philadelphia in 1912 and 1913 and an assistant instructor in surgery from 1913 to 1915. From 1914 to 1916 he was an assistant chief surgeon at the Philadelphia General Hospital. In 1916 he joined the faculty of the University of Michigan, was promoted in 1918 to assistant professor, in 1927 to associate professor of neurosurgery and in 1930 to professor of surgery. Since 1918 he had been chief of the neurosurgical division at the University Hospital.

Dr. Peet was a member of the advisory committee to the Committee on Scientific Exhibit of the American Medical Association. He served as vice chairman of the American Board of Neurological Surgery and was a member of the founders group of the American Board of Surgery. In the National Foundation for Infantile Paralysis he was a member of the general advisory committee, vice chairman of the committee on education and publications and at one time member of the committee on virus research. Maintaining a deep interest in the Warm Springs Foundation, Dr. Peet became a director of the organization and in 1937 was cited by letter from the late President Roosevelt for his contribution to infantile paralysis research. He was a fellow of the American College of Surgeons and a member of the American Surgical Association, Society of Neurological Surgeons, Harvey Cushing Society and the American Neurological Association, an honorary member of the Sociedad Argentina de Cirujanos, Los Angeles Surgical Society and the Detroit Academy of Surgery. In 1931 at Berne and in 1935 in London he was a member of the International Neurological congresses and in 1938 of the International Surgical Congress in Brussels.

Dr. Peet was best known for original work on splanchnic section for arterial hypertension, was a contributor of numerous articles on neurosurgical problems to medical journals and chapters on neurosurgery in various surgical works. He was awarded the honorary degree of master of education by the state normal college in Ypsilanti in 1934. For many years ornithology was his hobby, and he possessed a fine collection. A genial scientist and humanitarian, he devoted his life to the principles of the medical profession.

Alexander Taylor Cooper ⊕ Colonel, U. S. Army, retired, San Juan, P. R.; born in Yutan, Neb., April 8, 1883; Medico-Chirurgical College of Philadelphia, 1907; entered the medical corps of the U. S. Army as a first lieutenant in June 1910; training followed in the Army Medical School and in the Medical Field Service School at Carlisle, Pa.; formerly medical chief of the Rodriguez General Hospital; promoted through the various grades to that of colonel in 1936; retired from active duty in 1940, when he joined the staff of the School of Tropical Medicine of the University of Puerto Rico, where he served as liaison officer between this institution and the U. S. Army in Puerto Rico during World War II; on the staffs of the University and Presbyterian hospitals; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the American Academy of Tuberculosis Physicians, Association of Military Surgeons of the United States and the Association of Medical Veterans of World War I; died January 2, aged 65, of a ruptured aortic aneurysm.

James Francis McKernon, New York; born in West Cambridge, N. Y., March 13, 1865; College of Physicians and Surgeons, medical department of Columbia College, New York, 1890; emeritus professor of otology at the New York Post Graduate Medical School and Hospital, where he was elected president of the board of directors in 1911, resigned in 1917, and was reelected in 1919; served as president until his retirement in 1928, when he received the title of honorary president; served in France during World War I; specialist certified by the American Board of Otolaryngology; past president of the Medical Society of the County of New York and American Laryngological, Rhinological and Otological Society; past president and secretary of the American Otological Society; member of the American Medical Association; fellow of the American College of Surgeons; affiliated with the Manhattan Eye, Ear and Throat Hospital; died January 22, aged 83, of diabetes mellitus.

Robert Osgood Brown ⊕ Santa Fe, N. M.; born in Chicago in 1890; Rush Medical College, Chicago, 1914; served as chairman of the public welfare department of the state of New Mexico, as president of the Santa Fe County Medical Association, New Mexico Medical Society, Santa Fe County Tuberculosis Association, New Mexico Social Hygiene Association and the New Mexico Tuberculosis Association; member of the American College of Chest Physicians and the American Trudeau Society; fellow of the American College of Physicians; in 1946 was among eleven distinguished alumni of the University of Chicago who were awarded citations of merit at the annual alumni assembly in June; the citations, established during the university's fiftieth anniversary celebration in 1941, are given in recognition of public service to the community, the nation and humanity; affiliated with St. Vincent Hospital; died February 1, aged 58, of coronary thrombosis.

Hunter Holmes McGuire ⊕ Winchester, Va.; born in Winchester, March 30, 1875; University College of Medicine, Richmond, 1897; specialist certified by the American Board of Ophthalmology; served as a member of the board of visitors of the Medical College of Virginia; member of the American Academy of Ophthalmology and Otolaryngology; and the Association for Research in Ophthalmology; past president of the American Ophthalmological Society and the Medical Society of Virginia; founder and first president of the Virginia Society of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; awarded the Distinguished Service Medal for service during World War I; president of the board of directors, chairman of the executive committee and on the staff of Winchester Memorial Hospital, of which he was a founder; died January 21, aged 73.

Harry George Steele, Bluefield, W. Va.; born in Stewardson, Furnace, Pa., Jan. 15, 1877; College of Physicians and Surgeons, Baltimore, 1903; member of the American Medical Association; past president and secretary of the McDowell County Medical Society; served as president, as secretary and treasurer of the Mercer County Medical Society; formerly councilor of the Fifth District of the West Virginia State Medical Association, of which he had been vice president; in 1944 first vice president of the American Congress of Obstetrics and Gynecology; secretary-treasurer of the West Virginia Society of Obstetrics and Gynecology and a past president; died in Sarasota, Fla., January 29, aged 72, of heart disease.

Abraham Owen Wilensky ⊕ New York; born in New York May 20, 1885; Columbia University College of Physicians and Surgeons, New York, 1907; fellow of the American College of Surgeons; member of the American Association for Thoracic Surgery; formerly on the faculty of Cornell University Medical College; affiliated with Mount Sinai Hospital, Bronx Hospital, Beth David Hospital and the New York Infirmary; consulting surgeon to the Crown Heights Hospital in Brooklyn and the Boulevard Hospital in Long Island City; author of "Osteomyelitis: Its Pathogenesis, Symptomatology and Treatment"; died in Park East Hospital February 4, aged 63, of coronary thrombosis.

John Walter Vaughan, Detroit; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1904; fellow of the American College of Surgeons; formerly assistant clinical professor of surgery at the Detroit College of Medicine and Surgery; in 1913 member of the House of Delegates of the American Medical Association; formerly member of the city board of health; served in France during World War I and received citations for conspicuous service; formerly affiliated with the Charles Godwin Jennings and Harper hospitals; died January 21, aged 68, of coronary thrombosis.

Wayne Bernard Granger ⊕ Emporia, Kan.; University of Illinois College of Medicine, Chicago, 1919; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; member of the board of education; on the staffs of St. Mary's Hospital and the Newman Memorial County Hospital, where he died December 26, aged 56, as the result of injuries received when he was struck by an automobile.

Alson Herbert Baker ⊕ Berea, Ky.; Hospital College of Medicine, Louisville, 1905; on the staff of Berea College Hospital; served as city health officer; died December 30, aged 68, of cardiovascular disease with coronary occlusion.

Thomas Jefferson Ballard, Corbin, Ky.; Hospital College of Medicine, Louisville, 1905; died recently, aged 70.

Richard Franklin Cook ⊕ Carrollton, Mo.; University of Missouri School of Medicine, Columbia, 1893; fellow of the American College of Surgeons; served as county health officer; died in Farmington, December 26, aged 77.

John Wiley de Vry, Elgin, Ill.; Bennett Medical College, Chicago, 1907; served during World War I; died December 11, aged 70, of cardiac failure.

Joseph N. Ellis, Seymour, Tenn.; University of Louisville Medical Department, 1891; died in Crossville, December 25, aged 82, of cardiovascular disease.

Russell C. Gourley, Punxsutawney, Pa.; Medical Department of the Western University of Pennsylvania, Pittsburgh, 1894; affiliated with Adrian Hospital; died in Suburban General Hospital, Bellevue, recently, aged 78, of pulmonary infarction.

Evart Hankins, Finchville, Ky.; Kentucky School of Medicine, Louisville, 1897; died December 30, aged 80, of pulmonary tuberculosis.

Louis Albertus Heidel, Springfield, Vt.; University of Vermont College of Medicine, Burlington, 1897; formerly on the staff of the Rutland Hospital in Rutland; died in Brattleboro, December 27, aged 73, of heart disease.

Peter Nathaniel Jacobson, Oakland, Calif.; Cooper Medical College, San Francisco, 1905; member of the American Medical Association; a founder and member of the staff of Peralta Hospital, where he died December 10, aged 68, of heart disease.

Frank L. Keeler, Miami, Fla.; Tennessee Medical College, Knoxville, 1900; member of the American Medical Association; died December 7, aged 74, of bronchopneumonia and fracture of rib as the result of a fall from a chair.

James Charles Keeney ⊕ Hoboken, N. J.; University and Bellevue Hospital Medical College, New York, 1926; for many years medical examiner for the New Jersey State Workmen's Compensation Board at Trenton; served during World War II; on the staff of St. Mary's Hospital, where he died December 15, aged 48.

Roscoe Belden Martindale, Worthington, Iowa; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1895; died recently, aged 81, of arteriosclerosis.

George Alec Poland, Pleasantville, N. J.; Jefferson Medical College of Philadelphia, 1925; member of the American Medical Association; member of the staff of Atlantic City (N. J.) Hospital, where he died December 19, aged 56, of cerebral hemorrhage.

Frank Anthony Pugliese, Punxsutawney, Pa.; Temple University School of Medicine, Philadelphia, 1935; member of the American Medical Association and the American Society of Clinical Pathologists; pathologist at Adrian Hospital; died recently, aged 40, of bilateral pneumonia complicated by acute lymphatic leukemia.

Robert Conrad Ruedy ⊕ Washington, D. C.; George Washington University School of Medicine, Washington, D. C., 1904; also a graduate in pharmacy; died December 27, aged 72, of coronary occlusion.

Richard Lee Russell, Ashland, Mo.; Kansas City (Mo.) Medical College, 1905; Eclectic Medical University, Kansas City, 1906; served during World War I; formerly associated with the U. S. Public Health Service; at one time physician for the state penitentiary; served as health officer of Miller, Webster and Greene counties; for many years affiliated with the state board of health; died in St. Mary's Hospital, Jefferson City, December 24, aged 71, of hypertension and heart disease.

William Daniel Schafer, Portsmouth, Ohio; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910; health officer and city physician for New Boston; died December 23, aged 62, of coronary embolism.

Dewey Ernest Schultz, Benavides, Texas (licensed in Texas in 1937); died December 3, aged 50.

George Washington Sherouse, Campville, Fla.; Atlanta School of Medicine, 1910; died recently, aged 63, of cerebral hemorrhage.

Junius Boyette Surles, Four Oaks, N. C.; Jefferson Medical College of Philadelphia, 1909; died January 11, aged 67, of heart disease.

Ernest Walter Tallman, Gaylord, Kan.; St. Louis University School of Medicine, 1905; member of the American Medical Association, died in St. Anthony's Hospital, Hays, recently, aged 72, of heart disease.

Edward Chapin Terrill, Mobile, Ala.; University of Alabama School of Medicine, 1909; member of the American Medical Association; died recently, aged 62, of cerebral hemorrhage.

Pius Lee Thompson ⊕ Grand Rapids, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903; fellow of the American College of Surgeons; past president of the Kent County Medical Society; affiliated with St. Mary's Hospital; died in Gulfport, Miss., January 18, aged 71, of angina pectoris.

Alvah Harry Traver ⊕ Albany, N. Y.; Albany Medical College, 1898; associate in surgery at his alma mater; fellow of the American College of Surgeons; on the staffs of the Child's and Albany hospitals; died January 22, aged 73.

Elias Doar Tupper, Summerville, S. C.; Medical College of the State of South Carolina, Charleston, 1905; member of the American Medical Association; on the staff of Dorchester County Hospital; died January 20, aged 69, of nephritis and splenomegaly.

Marcellus M. Turlington, Seminole, Okla. (licensed in Oklahoma under the Act of 1908); member of the American Medical Association; died January 5, aged 80, of paraplegia and arteriosclerosis.

James Samuel Unger, New York; Columbia University College of Physicians and Surgeons, New York, 1896; formerly on the staff of the Manhattan Eye, Ear and Throat Hospital; died January 19, aged 74, of coronary sclerosis.

James Edgar Vance, San Bernardino, Calif.; Barnes Medical College, St. Louis, 1894; died in Louisville, Ky., January 11, aged 81, of heart disease.

Crawford Lee Vines, Kilgore, Texas; Memphis (Tenn.) Hospital Medical College, 1910; member of the American Medical Association; died recently, aged 65, of cerebral hemorrhage.

Paul Chamberlain Walter ⊕ Progress, Pa.; Johns Hopkins University School of Medicine, Baltimore, 1923; for many years affiliated with the Harrisburg (Pa.) Hospital, where he died recently, aged 51, of reticulum cell sarcoma of the mediastinum.

Lawrence Shapiro Ward ⊕ New London, Conn.; Cornell University Medical College, New York, 1931; specialist certified by the American Board of Internal Medicine; affiliated with Lawrence and Memorial Associated Hospital, where he died December 16, aged 40, of carcinoma of the colon.

James E. Warrick, Valentine, Neb.; College of Physicians and Surgeons, Baltimore, 1888; died January 17, aged 84, of nephritis.

Simon James Watkins, Covington, Ky.; Meharry Medical College, Nashville, Tenn., 1891; died recently, aged 87, of heart disease.

Abel E. West ⊕ Philadelphia; Leonard Medical School, Raleigh, N. C., 1908; died January 9, aged 72, of bronchopneumonia.

Walter James White, Atlantic Highlands, N. J.; University of Vermont College of Medicine, Burlington, 1899; died in the Tilton General Hospital, Fort Dix, December 27, aged 73, of nephrosclerosis and arteriosclerotic heart disease.

Washington A. White, Cambridge, Ohio; Eclectic Medical Institute, Cincinnati, 1880; died February 10, aged 98.

Daniel Newton Williams, Chattanooga, Tenn.; University of Tennessee College of Medicine, Memphis, 1911; member of the American Medical Association; past president of the Chattanooga-Hamilton County Medical Society; served during World War I; for many years affiliated with Erlanger Hospital; on the staff of the Florence Crittenton Home; died in the Pine Breeze Sanatorium January 7, aged 68, of tuberculosis.

William Woodford Woody, Tulsa, Okla.; Kentucky University Medical Department, Louisville, 1906; served during World War I; formerly city health officer; died in the Veterans Administration Hospital, Muskogee, December 7, aged 68, of coronary sclerosis.

Charles Cowing Zacharie, Marlboro, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1895; member of the American Medical Association; served during World War I; died in Veterans Administration Hospital, New York, recently, aged 75, of carcinoma of the prostate.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 19, 1949.

The Fellowship for Freedom in Medicine

The Fellowship for Freedom in Medicine, which was formed under the chairmanship of Lord Horder to work for amendment of the Act establishing the National Health Service, has attained a membership of 2,200. Speaking at a meeting when it adopted a constitution as a registered company and decided on future policy, Lord Horder said that they did not aim at repeal of the Act. The Health Service had achieved a certain momentum and at some points, as in the regionalization of hospital services, there were clear improvements. But the Minister of Health had not yet introduced the Act which he had promised to secure doctors against the possibility of being made whole time servants. Nor had he implemented his promise to submit new regulations. The Fellowship would press for that. For the "betterment factor" agreed by the Spens Committee the Minister had decided on a figure of 120 per cent while the actual increase was 185 per cent.

The meeting adopted a constitution as a registered company and decided on future policy. The following are among the registered objects. (1) To insist on the preservation of the highest standards of medical practice. (2) To protect the public and the medical profession from state monopoly in medicine. (3) To preserve the ethical and professional freedom of the individual doctor in the service of his patients and to maintain the status of the general practitioner, including his financial security. (4) To oppose all encroachments of the State on the independence of medical institutions and maintain the academic freedom of all teachers of medicine. (5) To define the limits of state medicine so as to protect the rights of the public and of the medical profession in relation to all types of independent practice. (6) To support and protect the character, status and interest of the medical profession generally.

Remedy Which Protects Cattle Against Trypanosomiasis

A new drug to protect cattle from the tsetse fly in tropical Africa, which is called "antrycide," is described by the Colonial Office as a great advance and is regarded as a means of making safe for cattle rearing 4,500,000 square miles. The drug is the result of the work of a team of chemists, biologists, veterinarians and pharmacists which began in Manchester in 1944. They tested many synthetic compounds likely to be effective against the trypanosomes in the blood stream, which cause the disease. At first they experimented with mice, and on discovering a new drug known as M.7555 they removed the laboratory equipment and staff to parts of Africa where the disease is endemic. In the worst areas they found that "antrycide" cured all forms of trypanosomiasis in cattle, horses, camels and other animals. It also had a prophylactic effect and produced no undesirable reactions. A single treatment cured cattle of Trypanosoma congolense and Trypanosoma vivax infections, the two worst forms of the disease. It was also successful against Trypanosoma brucei infection in cattle, horses and dogs, against Trypanosoma evansi in cattle and Trypanosoma simiae in pigs.

Experiments with immunization of cattle are still proceeding, but it has been shown that "antrycide" in most cases protects against T. congolense for six months. Experiments which are to continue until May appear to show that infections recurring after only four months may be expected to respond to a second treatment. Cattle protected against T. vivax have in most cases remained immune for four or five months. Precise information must be secured on the period of immunity, for this will determine the number of times a year that cattle must be rounded up for treatment. "Antrycide" is a white crystalline powder soluble in water and is administered by hypodermic syringe. It is intended to give simple instructions to cattle owners so that they can use the drug. Imperial Chemical Industries, which has taken part in the research, expects to produce two or three tons of "antrycide" next year, sufficient to cure or immunize 2,000,000 animals. At first supplies will be limited and will go to the Governments of the Sudan, Kenya and Uganda, where the need is urgent. It will not be necessary to immunize every animal in a stock raising area, but only those on the edge of the bush. As a result of the discovery the Colonial Office looks forward to a vast extension in Africa of the area of mixed farming.

Immunization Against Diphtheria

The Ministry of Health reports a steady decline in diphtheria since 1941, when their immunization campaign got under way. In that year deaths and cases in the great towns numbered 1,487 and 27,613 respectively. The deaths were fourteen times more and the cases over five times more than in 1948. The deaths in 1948 were the lowest on record. They totaled 100 in the twenty-six great towns which cover about half the population of England and Wales. The notifications of cases numbered 5,182, another new low record. This steady decline in diphtheria since the war is in striking contrast to the position in other European countries, where the disease followed the march of the German armies and the incidence rose alarmingly. In the Netherlands, for example, there were 219,772 cases in the six years 1941 to 1946, compared with 8,649 in the previous six years.

"A Pill Dispenser and Filler-in of Certificates"

Dr. B. U. Coffey, a country general practitioner of Ixworth, Suffolk, has written to the Ministry an open letter about his practice under the National Health Service. "I no longer practice medicine," he says. "I'm just a pill dispenser and a filler-in of certificates." To this routine many practitioners are reduced by the time wasted by persons with little or nothing the matter, because they have to pay nothing. This has been paralleled in New Zealand by the state medical service, in which the treatment is so perfunctory that it has been compared to "sheep dipping," a process well known in that country. The time of the practitioner wasted in England in the filling in of certificates and other forms has given rise to loud complaints from many doctors.

Doctor or Dentist: Who is Responsible for Treatment?

In the work of the National Health Service difficulties are constantly arising. The latest is the case of a patient who complained of bleeding from the gums after tooth extraction the day before. He summoned his doctor, who thought that the dentist should also be sent for. He was summoned at 1:30 a. m. and refused to go. He denied that the treatment of the patient was his responsibility and said it was the doctor's. In the whole course of thirty-five years' practice he had never been asked to go out in the middle of the night to attend such a case. The local National Health Committee decided to tell the dentist that he was wrong and ought to apologize to the doctor. They also asked the Minister of Health for a ruling in such a case.

The British Postgraduate Medical Federation

Postgraduate traveling fellowships for 1949-1950, tenable for one year, have been awarded to J. V. Crawford of the London Hospital (neurosurgery, United States); J. S. Prichard, of the National Hospital, Queen Square, and the Postgraduate Medical School, Hammersmith (neurology, United States and Canada); R. D. Tonkin, of Westminster Hospital (general medicine, United States and Canada), and J. E. M. Whitehead, of St. Thomas's Hospital (bacteriology, Scandinavia).

PARIS

(From Our Regular Correspondent)

Feb. 12, 1949.

Surgical Treatment of Arterial Hypertension

Riser, Ducuing, Lazorthe and Dardenne (Toulouse) considered nephrogenic hypertension little susceptible of improvement through surgical treatment, in comparison with neurogenic or essential hypertension, which is suitable for operative intervention. After experimenting with all technics, they prefer Smithwick's, accompanied, in certain cases, with unilateral adrenalectomy. Wertheimer and Lecuire (Lyons) have presented results of thirteen years' experience with Peet's operations: 1 death through operation; 8 subsequent deaths; in 4 out 6 improved cases the lowering of hypertension has been maintained. In 30 cases of thoracolumbar sympathectomy among which 17 were bilateral, 4 deaths occurred through operation. In 22 cases of unilateral adrenalectomy associated in 17 cases with sympathetic intervention, the authors have noted: 1 death during operation, 4 deaths within one to two years and 12 survivors with 7 good results and 5 unfavorable. Fontaine (Strassburg) in 37 adrenal operations had 5 deaths, 12 very satisfactory results, 8 satisfactory, 6 improvements and 6 failures. The author considered as the best technic left adrenalectomy plus splanchnicectomy, accompanied by bilateral lumbar sympathectomy. Thoracolumbar operations showed a more noticeable effect on tension. M. Peet (Ann Arbor) presented results of operations in 2,100 cases since 1933. He noted 1.6 per cent mortality in the cases without papillary edema, 10 per cent in the malignant form with papillary edema, and 2.2 per cent in cases of hypertension with cerebrovascular accidents. The first 1,000 patients after five years showed 13.5 per cent normal, 41.5 per cent improved, 12.5 per cent without change and 32.5 per cent dead.

The next congress will take place during the second fortnight of September 1949. On the agenda are: (1) Surgical Treatment of Cancer of the Pancreas; (2) Treatment of Osteomyelitis with Staphylococci, and (3) Indications and Technics of Electrosurgery (Except for Urology).

Congress of Surgery

The treatment of cancer of the breast, either by surgery or by surgery associated with radiotherapy, selection of patients to be treated by one of these methods and best methods of preparation in order to avoid relapses and metastases were on the agenda of the fifty-first congress of the French Association for Surgery, which was held in Paris in October 1948. Professor Fiolle (Marseilles) presided. On the strength of 1,037 observations, Professor Ducuing (Toulouse), director of the Anticancer Center of this city, believes that radiosurgical treatment improves the percentage of recoveries and survivals, but increases the frequency of relapses and "ligneous brachia." In 600 cases, Mayer (Bruxelles) obtained 60 per cent survivals over five years with surgical treatment only. He recommends axillary implantation of two tubes of radium after operation. Tailhefer (Paris) (Curie Foundation and Anti-Cancer Center of the Paris Hôtel-Dieu Hospital) obtains 83 per cent of survivals of over five years and 67 per cent of survivals of over ten years by surgical treatment only. He recommends preoperative radiotherapy in tumors of over 5 cm. with important adenopathy and postoperative radio therapy when examination has revealed lymph node involvement. Cukor (Budapest) applies preoperative radiotherapy until mobility of the tumor is obtained. He then removes the tumor and lymph nodes. In 628 cases he has noted only 4 per cent of relapses. Leger (Paris) obtains good results with radiotherapy followed, after a delay of eighteen days to three months, by surgical removal with lymph node curettage. Decker (Lausanne) esteems postoperative radiotherapy as more logical, as it is more capable of acting on a region rendered thinner. Redon, of the Paris Villejuif Anti-Cancer Center, has obtained, through postoperative radiotherapy, 64 survivals of more than five years, without relapses or metastases, in 114 cases. Chalnot (Nancy), on the basis of his experience in 110 cases and the statistics of the Anti-Cancer Center of Lorraine, also recommends surgical intervention, followed by radiotherapy in cases with controlled lymph node invasion. Santy and Dargent (Lyons) presented the statistics on 1,531 cases of their anticancer center. They recommend preoperative and postoperative semiteleroentgen therapy. Baclesse (Paris) presented 145 cases (operable, as well as inoperable) attended at the Curie Foundation with interesting results obtained solely through roentgen therapy. Results were related to a particular technic (high doses and spreading out over a long period) which is still under study and requires long experience. Dargent (Lyons) considers hexestrol the medication of choice for advanced cancer in the 60 to 70 year age group. In 90 cases of advanced cancer, castration did not produce lasting results. A. Sicard (Paris) considers surgical castration preferable to castration by radiation. Castration should be systematically performed after surgical removal of the breast, especially in the still menstruating woman.

International Union Against Cancer

From July 18 to July 21 a general meeting of the board of directors of the International Union Against Cancer will take place in Paris. It will include the ordinary general meeting and an extraordinary general meeting, the latter being devoted to amendments to statutes. All delegates of government or private organizations, members of the International Union Against Cancer and associate members are invited.

The fifth international congress for scientific research and the fight against cancer will take place in Paris July 17-21, 1950. Professor Lacassagne will preside. Registrations will be received immediately at the head office of the International Union Against Cancer, 6 avenue Marceau, Paris (8°).

Specialist Training in Faculty of Medicine

The Paris Faculty of Medicine has prepared an extensive plan for graduate teaching in the practical aspects of medicine, surgery and obstetrics for the scholastic year 1949. The plan includes: May 13 to 19, "The International Week for Cardiology of the La Pitié Hospital," under the direction of Professor Lian; May 20 to 22, "The Medical Days of the Broussais Hospital," under the direction of Professor Pasteur-Valery-Radot; in March 1949 the "Pediatry Days at the Children's Hospital" under the direction of Professor Debre. Two days are provided for the study of the social and medical problems of poliomyelitis. The Lyons Faculty of Medicine has organized similar teaching courses for practitioners of Lyons and the surrounding district.

Diplomas for Specialists

New diplomas have been created in the faculties of medicine, and medicine and pharmacy corresponding to the new system of specialization mentioned in previous letters. They will be: (1) Diploma of Pediatrist, the training for which will last three years followed by an examination. Chiefs of services and assistants will only undergo two years' probation; (2) Diploma for Electroradiology, necessitating three years of theoretic studies and practical exercises, each being sanctioned by a preliminary examination which is indispensable for admission to the final examination; (3) Diploma of Anesthetist-Reanimator, corresponding to the great need in France for specialists in this field; (4) Diploma for Serology, applied to the diagnosis of syphilis; it is indispensable for chiefs of laboratories practicing serologic analysis. French doctors, foreign doctors having a French or foreign diploma and medical students having twenty "inscriptions" are accepted for admission to these courses.

Correspondence

THE ANESTHESIOLOGIST AND THE HOSPITAL

To the Editor:—The article by James Raglan Miller, M.D., entitled "The Relationship of the Anesthesiologist to the Hospital," which appeared in THE JOURNAL, January 1, page 9, has dealt with the relationship of anesthesiologist to the hospital in a very intelligent manner. There is much more which could be said concerning this subject, but most of it would fall strictly into the field of individual hospital management, in a host of specific examples. I believe the most important problems concerning strained and abnormal relationships have at least been mentioned in his presentation. Certainly he is correct in his main contention that in most instances in which relations are abnormal and unhealthy the fault lies in the fact that the anesthesiologist is not on a par with other men on the staff and frequently is not even a member of the medical staff.

It is almost unthinkable that a hospital would employ a specialist and not expect or allow him to be a member of the staff. It is more ridiculous still to think of a medical staff which would not expect and insist that a fellow physician be made a member of the staff. And the greatest surprise of all to me is that an anesthesiologist would accept a job in a hospital where he was not on an equal footing with other physicians—as a member of the professional staff. If he is in charge of his department and specialty I cannot imagine him other than a voting staff member on the same level as a surgeon or internist.

I never could see but one workable system in any hospital as far as relations between staff and management go. The professional staff should have no less than all the say in medical hospital services and the management should direct its attention to nonmedical hospital services only. This means a well organized staff, with departmental organization perfected to function in behalf of all specialties. The problems involved with surgery should be settled and controlled by surgeons, those of obstetrics by obstetricians, and so on. I cannot conceive of any other fair and practical way to operate intelligently medical services of any and all kinds in the best interests of the patient. If the hospital management were to devote its entire attention to nonmedical services and the staff, through its departmental organization, operate all medical services the patient would fare far better than he does most of the time.

Professional staffs of hospitals all agree that anesthesiology is a part of the practice of medicine, and why, in so many instances, they have not busied themselves to see that it is operated as such is beyond my comprehension. I believe that most state medical boards have ruled thus in the last twenty-five years. This makes the problem national and not a local one.

I live in hope that perhaps our new code of ethics of the American Medical Association will make it unethical for a physician to sell his professional services to nonprofessional persons, such as hospital management, if exploitation on the part of the hospital is attempted and if his salary is not commensurate, to a large degree, with the skill and service rendered. This will remove the temptation of the weak anesthesiologist who accepts a salary as security without caring too much whether he is being exploited or not.

The report and recommendations of the Massachusetts Medical Society which the author mentioned are excellent pieces of work and are pioneer works in the medical profession's crusade to keep medical services medical and within the control of the profession. Organized hospital management is big business and can swing a big stick if the profession becomes wishy-washy and indifferent to the protection of its members and exploitation of its services. But without the profession the hospital would be helpless. It is high time that the hospital staff direct its own operation and dictate its own policies and services. I should like to say amen to Dr. Goin's statement referred to in Dr. Miller's paper that it is a must for the profession to decide hospital policies in the field of medical care and that hospital trustees included in nonprofit hospitalization insurance plans must be told what they can and cannot do in the dispensing of medical services. Plans which offer to pay for medical services such as anesthesia, if supplied by the hospital, are not friends of the profession and should be denounced openly. Organization and strong self government of hospital staffs will prevent transgression on the part of management.

H. BOYD STEWART, M.D., President
American Society of Anesthesiologists
2500 E. 27th Place, Tulsa, Okla.

NOTE.—The letter was referred to Dr. Miller, who replies:

To the Editor:—I sincerely regret that my absence from the country made it impossible for me to reply at the time to Dr. H. Boyd Stewart's discussion of my paper on "Relationship of the Anesthesiologist to the Hospital" which appeared in THE JOURNAL, January 1, Page 9. I note that Dr. Stewart's discussion is generously in agreement with the general theme and the details of my paper and that he has emphasized fundamental aspects of the problem; namely, that medical policies should be the responsibility of the medical staff. I believe that most difficulties arise where the staff does not meet its responsibility. The individual anesthesiologist should not be expected single-handed to enter into contracts with hospital management without the guidance and advice of his senior colleagues. It is in their own interest as well as his and in the interest of sound medical practice to establish a simple and effective mechanism such as the suggested "prudential committee" to see that this function is fulfilled. Any other committee to which the duty is assigned would be satisfactory so long as it is done.

The principal argument of my paper is to the effect that with respect to unsatisfactory relationships between the anesthesiologist and hospital management, though they may be frequent and constitute even a problem of nationwide proportions, the solution is a function that can only be performed locally. The underlying principles to be observed have been clearly stated.

JAMES R. MILLER, M.D.
Hartford, Conn.

INCREASES IN REQUIREMENTS OF VITAMIN C IN VARIOUS CIRCUMSTANCES

To the Editor:—In THE JOURNAL, Dec. 4, 1948, page 1042, an editorial entitled "Vitamin A and Ascorbic Acid" called attention to recent experiments emphasizing the interdependence of action between vitamins A and C. The existence of an increased requirement of ascorbic acid in the rat in hypovitaminosis A has been extended to cover such various circumstances as hypervitaminosis A, cold temperatures and high dietary levels of proteins. An underlying common mechanism could be the existence of an accelerated rate of protein catabolism. This might also account for the earlier demonstration by Menten and King that vitamin C affords some measure of protection against the toxins of diphtheria and other infections. The evidence, which can be added to that regarding the thiamine-carbohydrate and nicotinic acid-tryptophane relationships, emphasizes anew that vitamin requirements are not fixed quantities but are largely dependent on diet pattern, health status and environmental conditions as well as on age and physiologic circumstances. They underline the wisdom of speaking, as do the Recommendations of the Food and Nutrition Board of the National Research Council, of allowances rather than of requirements when dealing with the dietary needs of populations.

JEAN MAYER, PH.D.
Washington, D. C.

DETECTION OF CANCER

To the Editor:—A recent editorial in The Journal notes the increasing attention being paid to the attack on cancer and the more general cooperation being given to it. Early diagnosis is stressed as today's best hope for cure of the disease.

The editorial especially urged periodic examination of apparently well persons over 40 for accessible silent tumors and the medical examination of persons with any one of the symptoms which are recognizable indications of the presence of the disease in early stages. "Such examinations in physicians' offices would provide the United States with over 100,000 detection centers," the writer adds.

With the "detection clinic" system, the Journal editorial estimated the cost of detection of a single cancer in one thousand complete clinical examinations of persons without symptoms—as was originally intended—at no less than $25,000. Other estimates have set the figure as low as $10,000.

In commenting on this editorial it has been stated: "The establishment of cancer detection clinics, therefore, cannot be a solution of the cancer problem, because of the impossibility of establishing—and paying for—enough of them to examine the whole population. The answer apparently lies in a greater voluntary public use of the existing skills and facilities provided by private medical practitioners. Every doctor's office might become a detection center, thus providing a great number of places from which victims of the disease in its early stages could move on for treatment, resulting in many cases in cures or completely arrested conditions. In the present stage, the fight against cancer depends in the first place for whatever success is possible without far greater knowledge of causation upon the public itself."

The doctor's office is a logical cancer detection center because only he will see the masses of the people, but to depend on "existing skills and facilities" to detect early cancer adds a note of defeatism. It is not easy to detect early cancer by clinical examination. Indeed, to succeed in finding a curable cancer while in the fleeting early clinical stage has often been referred to as "almost accidental." In the past we have overstressed routine clinical examination because it was the best hope that medical science had to offer. This is no longer true, especially in certain common types of cancer. A revolutionary advance in cancer detection methods, for the first time, places in the hands of the practitioner a powerful weapon to achieve early diagnosis. A regular cervical cytology test should bring the woman over 30 to the physician's office annually, permitting a complete examination. The common cancer of the cervix would be controlled, and other less common areas would have the benefit of regular scrutiny at least.

If the one hundred thousand doctors used the cervical cytology test as a routine on their female patients, it is my belief that of the 26,000 women who annually die of uterine cancer in America, perhaps 20,000 could be saved today! How could this become possible when there are so few trained cytologists to interpret the tests? Herein lies a clue to the application of this revolutionary aid in cancer screening. While the number of experienced cytologists is still small, this problem has been solved by the utilization of the expertly trained eyes of many technicians to screen out the normal slides. The normal ones may be efficiently eliminated by the screeners, while all positive and doubtful slides are reserved for the diagnosis by the cytopathologist.

An interesting experiment in cancer control has recently been completed in the Cytology Center in Montreal and the Cytology Institute in New York. Air mail was used to send slides to the specialized laboratory from the doctor's office. For over three years regular cancer diagnostic service has been rendered to doctors as far distant as Miami, Fla. Air mail permits reporting in two to four days. Physicians from forty-two states and eight provinces of Canada have mailed in a total of 3,455 cytology slides from their offices during the past three and a half years. Using this air mail cancer detection system, 109 cancers were diagnosed, and in an additional 143 cases the diagnosis of "precancer" cell changes was made. Of course, many of these were taken because they were clinical suspects. They were not all well patients. Even so, it is estimated that perhaps 100 lives have been saved from cancer through this limited diagnostic screening program. Many early and curable cases were found. The cytology test selects the case which requires a surgical biopsy for confirmation, although in the early "preclinical" stage it has proved superior to biopsy. Cytology, then, greatly strengthens the hand of the family doctor in the detection of this common type of female cancer.

If this system is practical and efficient on a small scale, why could it not be applied on a grand scale? The test is so efficient as a cancer detector that it should be made available to all classes, rich and poor, perhaps free of charge—or at least at minimal cost.

Screening by cytologic methods for the detection of other types of cancer, while less effective than in the cervix, still presents a substantial advance in diagnosis in pulmonary, gastric, bladder and prostate cancer, this same system being used which was evolved by Papanicolaou and others. It is my feeling that what is needed to put "teeth" into the "physician's office cancer detection program" is the setting up of centralized cytologic laboratories to which he may mail his tests for screening and interpretation by expert cytologists. Herein lies a tremendous opportunity for tangible progress along the road of cancer control.

Macdonald of the Mayo Clinic, who has had extensive experience in screening of the sputum for lung cancer, is of the opinion that mass screening of the sputum is a practical possibility today. Therefore, a routine annual sputum test for cells should bring the male patient to the physician for his regular cancer detection examination.

In the female, if patients attending a physician for a routine cancer examination had no further examination than a simple cervical smear or scraping, a breast palpation and a rectal examination, more cancer would be detected per patient than with any other known system of cancer examination. Yet the cost of this examination is extremely small. It is estimated that it should not cost as much as an appendectomy to detect a cancer in a female using this simple system. What is more important, the cancer when detected will not always be in an advanced and incurable stage. At least, we may definitely claim this in the cervix if a routine scraping is done. This new test is revealing an ever increasing volume of cancers in the early stage, developing in cervices which are clinically normal and which behave in a normal fashion. Such findings indicate that to diagnose the cancer while it is early, testing and examination must become a routine procedure at perhaps one to two year intervals rather than to be dependent on the appearance of a tumor or of symptoms of pain or bleeding before a search for cancer may be undertaken.

Galen, in the second century, was the first to make the echoing statement: "Early diagnosis is necessary if cancer is to be cured." Today, after nearly two thousand years, we are still repeating this slogan, but something new is needed besides propaganda and repetition of this statement. Cytology is the first tangible advance really to make possible this early diagnosis, and, therefore, to increase the number of cancers which will be cured.

J. Ernest Ayre, M.D.
Director, Cytological Laboratories,
McGill University, Montreal, Canada.

Bureau of Medical Economic Research

A MEDICAL SERVICE AREA MAP OF THE UNITED STATES

A Progress Report

FRANK G. DICKINSON, Ph.D.
Director, Bureau of Medical Economic Research
Chicago

For the first time, a medical service area map of the United States is presented. The maps of the eastern and western sections of the United States resemble a jigsaw puzzle because the areas vary so much in shape and size. (The two maps overlap slightly on the eastern edge of the western half and the western edge of the eastern half.) The areas are somewhat larger west of the Mississippi River. The boundaries of only a few of these areas coincide with the boundary of a county, and even in these few cases for a stretch of only a few miles.

There are 757 areas,[1] of which 212 areas straddle the boundaries of two or more states; the other 545 are intrastate areas. The areas are mutually exclusive and cover every square mile of land and every home in the United States. There are physicians in each area from whom the people of that area obtain most of their medical care. Every person in the United States lives in a medical service area where there are physicians. The distance to the nearest physician varies considerably. The completed study will show the approximate number of persons in each area who reside a considerable distance from the nearest town in which there is a physician.

TYPES OF CENTERS

There is only one set of areas, but there are three types of centers. At present there are 1,090 primary medical service centers, or roughly one and one-half primary centers per area. Eighty-seven of the 1,090 primary centers are prime-primary centers. The number of secondary centers cannot be tabulated until the new American Medical Directory is completed. Every town with one or more physicians is considered a secondary medical service center if it is not sufficiently important to be classified as a primary center. Unlike the primary, the prime-primary centers measure up to a uniform national definition. Each city so designated offers every type and kind of medical treatment and surgery. Many cities containing a considerable number of physicians are not designated as prime-primary centers because they do not provide brain surgery; in a few cases the absence of chest surgery has kept the city off this list of prime-primary centers.

The primary medical service center is one which, relative to the nearby towns, is a primary source of medical care. We have not followed any rule as to minimum size or minimum number of physicians or any other minimum measure of supply in choosing the primary center. In fact, some of the primary centers in the Rocky Mountain section contain few physicians, but, relative to the area served by these physicians, these towns are outstanding as sources of medical care and are properly designated as primary centers. On the other hand, there are towns in the East which are not so designated even though they have two or three times as many physicians as some of the primary centers in the Rocky Mountain area; the reason for not designating them as primary centers is that they are overshadowed by the primary centers—larger towns nearby with a larger number of physicians. The primary medical service center is essentially the same term as "primary trading center" used in market research. Our modification of this traditional marketing term should not obscure the fundamental concept involved. The primary medical service center and the medical service area belong in the literature of marketing as well as in the literature of medical economics.

AREAS: MEDICAL AND TRADING

Before a description of a medical service area is presented a few statements regarding the trading area idea may be helpful to physicians. Every store has an area from which it secures customers. The news counter in an office building draws most of its customers from the building. A neighborhood grocery usually draws its customers from the radius of a few blocks. Department stores in the central shopping section will attract customers from a distance of many miles. A retail trade area means the territory from which the retail stores in the principal center (or centers) secure a considerable part of the purchases made by the consumers in that area. The consumers in the smaller towns near the border of the area do more business in the center (or centers) of that area than they do in other areas.

In the present study we are concerned with the purchases of the services of physicians, not of groceries, hardware or the better grades of women's dresses. The established procedures for laying out marketing areas have been followed in this study. In particular, we are trying to show where the patients live who are served by the physicians in the towns and cities of the area. Some patients do obtain some or all of their physician services outside their own area—a feature of all trading areas.

Under our guidance the constitutional or executive secretary of each state medical society has tediously considered the "flow of medical trade" in every community, county and section of his state. The secretaries of many county societies have given much information about local conditions. Letters were obtained from physicians of long experience in many communities, especially along the state borders, before the boundaries of the medical service areas were finally drawn. It must be understood that physicians, through their referrals, give direction to the flow of medical trade. In the absence of a better summation of all services

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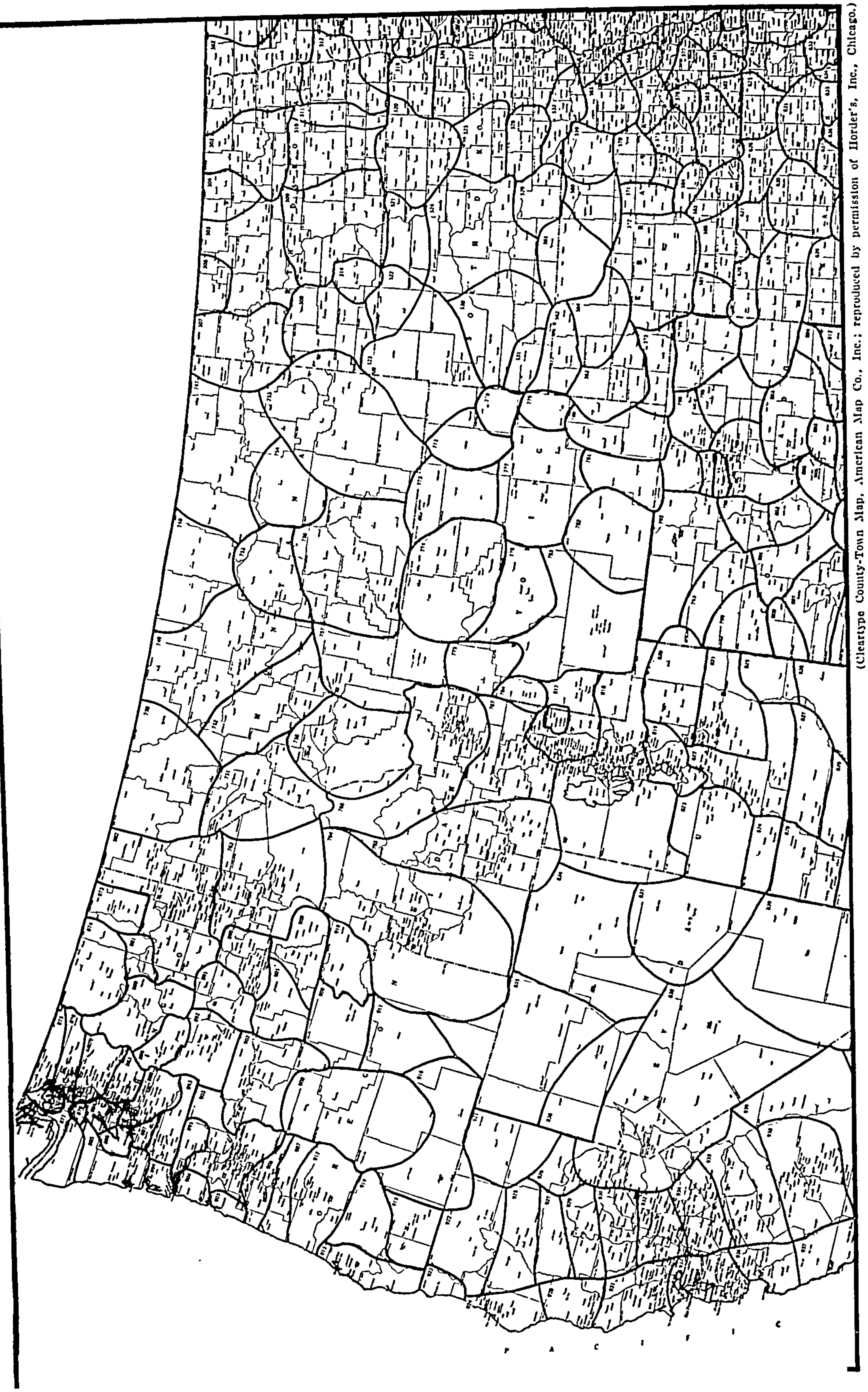
I have consulted my former colleague of many years, Professor Paul D. Converse of the University of Illinois, at several stages and drawn on his great fund of knowledge about marketing problems and his wide experience in trading area matters.

Charles E. Bradley, Ph.D., Associate in Economics, has been in active charge of this study since October 1948. Janith Turnbull Bierbaum, Research Assistant, has been responsible for the maps and the many details of the Bureau's contacts with the state medical society offices since July 1948; prior to July 1948 this part of the task was performed by Olga Lycyniak, Research Assistant.

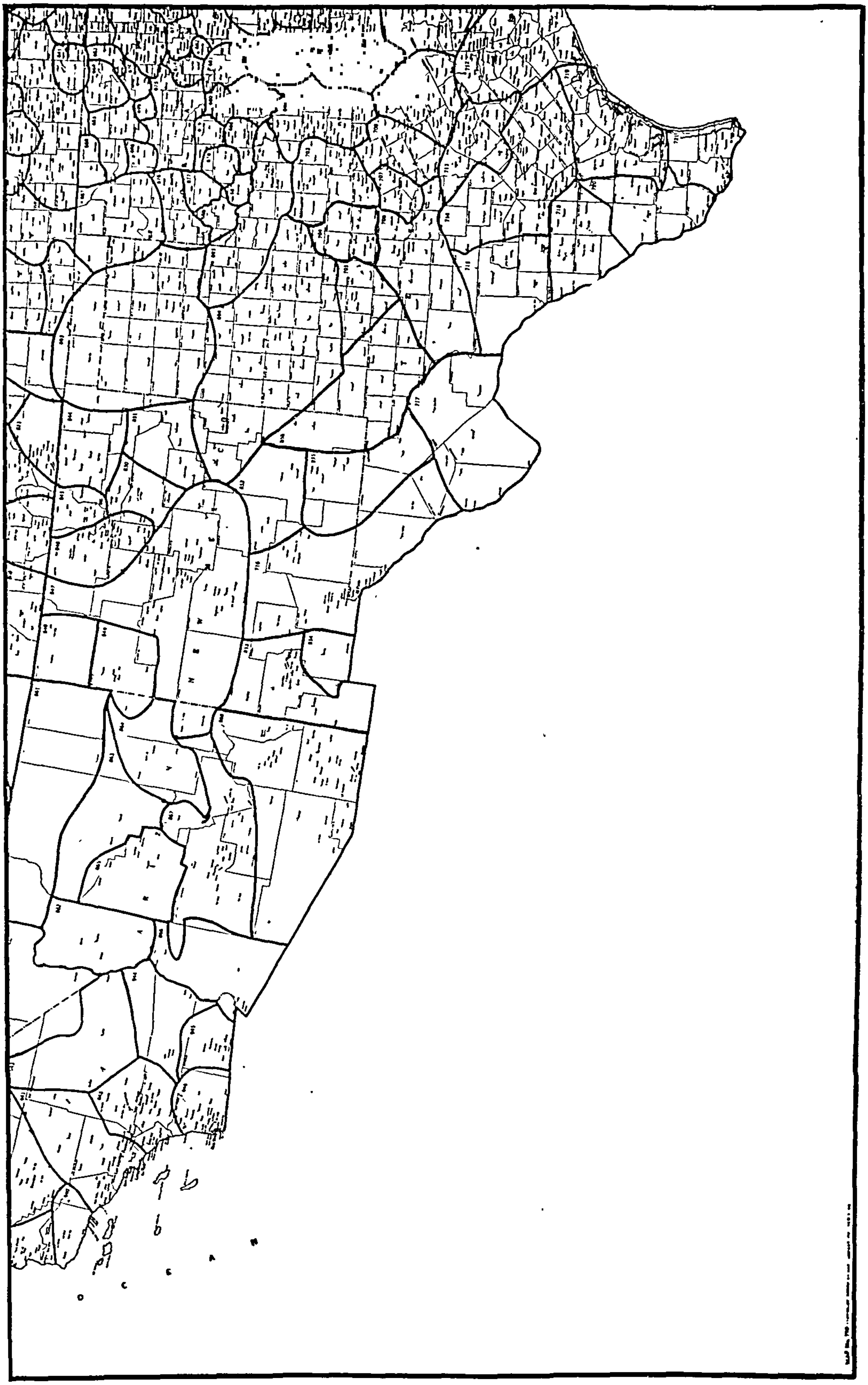
As stated in the text, the contributions to this study by officials of the state medical societies—in most states the constitutional or the executive or the field secretary—particularly in fixing the boundaries and designating the centers, have made these several score of persons co-authors, in a sense, of this progress report. Their names and titles will be given in the book manuscript, which should be completed late in 1949. I sketched the need for and the objectives of this study two years ago, soon after the study was started (Medical Service Areas in the United States, J. A. M. A. **133**: 1014-1015 [April 5] 1947). Briefly stated, the task was described as the establishment of "patient" areas to replace the unrealistic, anachronistic, rigid political areas traditionally used in medical economics to measure the supply and distribution of physicians. That short article, supplemented by mimeographed instructions, trading area maps and many letters, has guided the efforts of these executives of the state medical societies.

1. Cf. the 760 areas in Health Service Areas (Mountin, J. W.; Pennell, E. H., and Hoge, V. M.: Health Service Areas, Public Health Bulletin 292, Federal Security Agency, United States Public Health Service, 1945). In our study, as in theirs, the number of areas is approximately one fourth the number of counties.

MEDICAL SERVICE AREAS, BUREAU OF MEDICAL ECONOMIC RESEARCH



(Cleartype County-Town Map, American Map Co., Inc.; reproduced by permission of Horder's, Inc., Chicago.)



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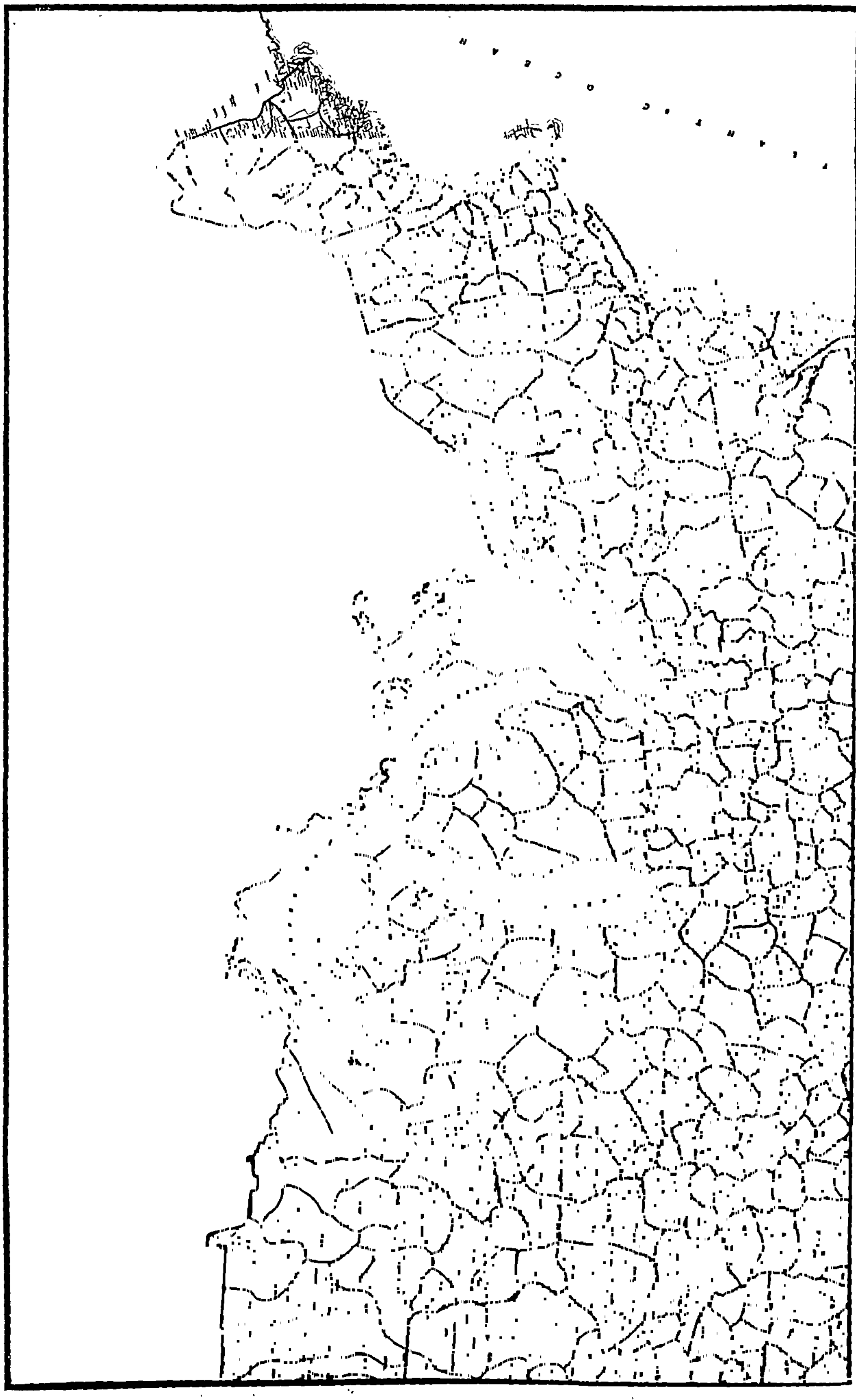
MEDICAL SERVICE AREAS, BUREAU OF MEDICAL ECONOMIC RESEARCH



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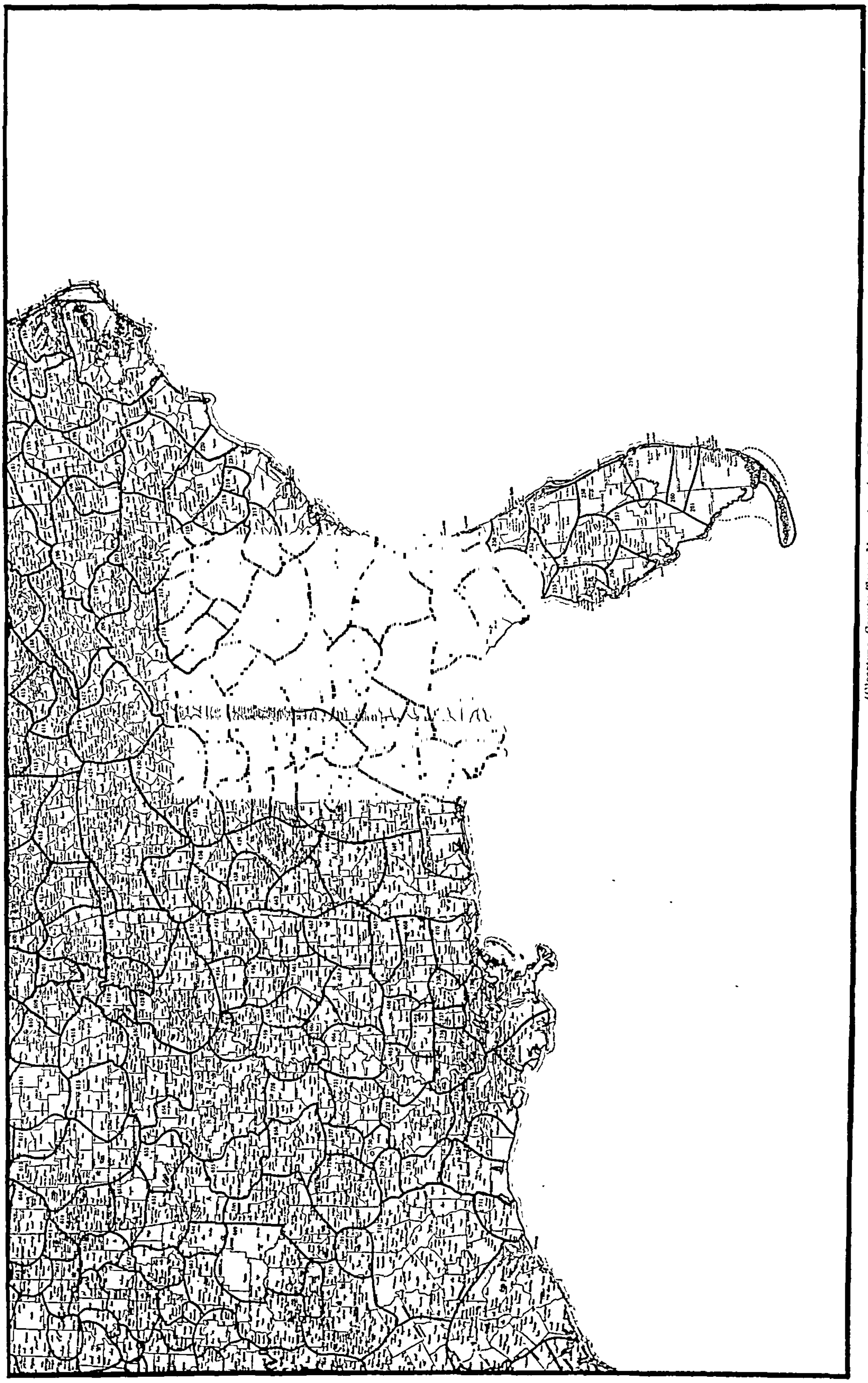

(Cleartype County-Town Map, American Map Co., Inc.; reproduced by permission of Horder's, Inc., Chicago.)

Medical Service Areas by States: Number of Intrastate and Interstate Areas with Code Numbers; Number of Primary and Prime-Primary Centers.*

Section and State	(1) No. of Intrastate Areas †	(1A) Code Numbers	(2) No. of Interstate Areas	(2A) Code Numbers	(3) No. of Primary Centers ‡	(4) No. of Prime-Primary Centers
New England						
Maine	18	1-18	0	....	32	0
New Hampshire	4	23, 26-28	3	24-25, 29	7	1
Vermont	5	34-38	0	....	7	1
Massachusetts	6	43, 45 47-50	3	44, 46 51	18	5
Rhode Island	0	....	3	56-58	5	1
Connecticut	8	63, 65-71	1	64	26	3
Middle Atlantic						
New York	23	76-98	0	....	28	5
Pennsylvania	15	103-106 108-112 114-117 119-120	4	107, 113 118, 121	26	2
New Jersey	9	126-130 132-135	1	131	18	1
South Atlantic						
Delaware	1	143	3	140-142	4	1
Maryland	1	151	4	148-150 152	5	1
Dist. of Columbia	0	....	1	157	1	1
West Virginia	5	159-161 165, 167	5	162-164 166, 168	12	0
Virginia	11	175-184 186	5	173-174 185 187-188	26	2
North Carolina	8	193-194 197-201 204	4	195-196 202-203	38	4
South Carolina	12	209-213 215-221	1	214	15	2
Georgia	4	229, 231 234, 236	8	226-228 230 232-233 235, 237	20	2
Florida	16	245 248-262	5	242-244 246-247	24	3
East North Central						
Michigan	23	267-269 272-290 292	3	270-271 291	29	1
Wisconsin	12	298 300-305 307-310 313	5	297, 299 306 311-312	31	2
Ohio	24	318-324 326-339 341 343-344	4	325, 340 342, 345	36	3
Indiana	14	354-357 359-363 365-367 370-371	10	350-353 358, 364 368-369 372-373	38	1
Illinois	19	379-387 390-393 395-400	5	378 388-389 394, 401	43	1
East South Central						
Kentucky	8	406-408 412-416	3	409-411	15	1
Tennessee	2	422 426	8	421 423-425 427-430	16	2
Alabama	9	436 438-445	4	435, 437 446-447	13	1
Mississippi	9	454, 456 458 460-461 463, 466 469-470	10	452-453 455, 457 459, 462 464-465 467-468	22	0
West North Central						
Minnesota	16	475-479 481-484 486 488-492 496	7	480, 485 487 493-495 497	29	3
North Dakota	7	503-506 508 510-511	6	502, 507, 509 512-514	15	0
South Dakota	5	521 524-525 528, 530	9	519-520 522-523 526-527 529 531-532	18	0
Iowa	11	537-539 541-542 546-551	7	540 543-545 552-554	21	4
Nebraska	17	559-560 564-566 568-571 574-579 582 584	12	561-563 567 572-573 580-581 583 585-587	29	2
Missouri	15	592-593 596-597 600-603 605-607 610-612 617	12	594-595 598-599 604 608-609 613-616 618	28	2
Kansas	16	623-627 630-633 635-639 642-643	7	628-629 634 640-641 644-645	23	1
West South Central						
Arkansas	4	650 653-655	3	651-652 656	18	1
Oklahoma	25	661, 663-666 668-675 677-688	3	662 667 676	36	2
Texas	22	696, 698 701-715 717-721	7	693-695 697 699-700 716	74	9
Louisiana	13	727 729-737 740-742	4	726, 728 738-739	25	2
Mountain						
Montana	8	747-750 752-754 756	4	751, 755 757-758	14	0
Idaho	1	767	4	763-766	7	0
Wyoming	5	772 776-777 782-783	8	773-775 778-781 784	23	0
Colorado	24	789-812	0	....	28	1
Utah	10	819 821-829	3	817-818 820	14	1
Nevada	3	834 836-837	3	835 838-839	6	1
New Mexico	9	844-846 848 850-854	4	847, 849 855-856	15	1
Arizona	7	861-865 867-868	1	866	12	2
Pacific						
Washington	21	873-881 883-889 891-895	2	882, 890	33	3
Oregon	14	900-901 904-915	3	902-903 916	26	1
California	26	921-946	0		36	4
Total	545		212		1,090	(87)

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* In this table the states are arranged in nine regions but the arrangement within each region is determined by the sequence of code numbers. The code numbers run from 1 to 946 for the 757 areas. There are four unused numbers between each state and one following the District of Columbia. These unused numbers are for possible future expansion or changes in areas. The code number of the area is located in the top or north part of the area or, where convenient, in the northeast corner of the area. The order of numbering areas follows the same general rule starting with the area in the state farthest north or northeast and numbering from right to left for the top tier and from left to right for the second tier and from right to left for the third tier. This system is an adaptation of the surveyor's method of numbering sections in a township, but it is difficult for the reader to follow because of the irregular shapes and sizes of the areas. The numbers are consecutive within the state. The area code number will be punched into the punch card of every physician in the area. Henceforth the Bureau will use only medical service area and state groupings of physicians in its published statistical summaries.

The order in which the states in each section are numbered follows the same rule; that is, the state farthest north or northeast has the lowest set of numbers (columns 1A and 2A). The next state in the numbering system is west, or west and south of the first state. Again this order of states in the numbering has been an adaptation of the surveyor's method of numbering the sections in a township.

† Of the 757 areas, 212 straddle the boundaries of two or more states as shown in columns (2) and (2A). The remaining 545 are intrastate areas; the number of intrastate areas for each state is shown in column (1) and the code numbers of the intrastate areas in column (1A). Of these 212 interstate areas, 169 have primary centers in only the one state and are assigned to that state; 42 areas have primary centers in two states and are assigned to the state in which the largest (or larger) primary center is located. Only the Chicago area has centers in three states.

‡ In column (3) the number of primary centers for each state are shown. This number includes the number of prime-primary centers, if any, for each state; the latter are set forth separately in column (4). It should be clearly understood that the 87 prime-primary centers are included in the 1,090 primary centers as the former is merely a special case of the latter. Every prime-primary center is a primary center. The number of secondary centers for each state has not yet been tabulated.

rendered by physicians, the several hundred helpers were advised to use the flow of dollars paid to physicians as the measure of the flow and direction of medical trade. This summation is not ideal for medical services, but it is the measure used in most trading area studies.

WORK DONE BY STATE SOCIETIES

Students of marketing will appreciate the difficulties in designating the primary centers. The first step was to assume *a priori* that each county contained a primary center. On the basis of that assumption we asked and obtained from a good many county medical societies maps circumscribing the territory served by the members of the county medical society. In practically all instances the area was larger than the county, sometimes larger than several counties. The second step was to ask the state medical societies to designate the primary medical service centers. The secretary or, much more often, the executive secretary of the state medical society assumed this task. By means of voluminous correspondence and many personal conferences the list of primary centers was finally agreed on. During these discussions and in the correspondence, we made considerable use of other trading area studies—particularly those of the Curtis Publishing Company[2] and certain marketing area studies by Professor Paul D. Converse of the University of Illinois.[3] The cities of each state were arranged in descending order of population with the number of physicians and hospital beds shown for each city, and the larger centers were designated as primary; some cities not so designated are larger than some of the designated centers. Almost without exception the number of primary medical service centers in each state exceeds the number of primary trading centers per state in any other marketing study which we have examined closely during the past two years. Thus the selection of the primary medical service centers was the most important factor in determining the size, shape and number of medical service areas. In order to avoid the strait jacket of uniformity we did not require a minimum population or minimum number of physicians.

It is not unusual in marketing area studies to designate two and occasionally three centers in a few areas. Our study is peculiar in that we seem to have an unusually large number of areas with two or even three primary medical service centers. At this stage of the study it would appear that such a result really reflects the medical trading habits of the people and the conditions of supply. The number of areas with more than one primary center is somewhat larger than anticipated on the basis of the fine work which has been done in marketing studies by others. It is possible that the procedures followed in making this study have tended to produce this result. Certainly one and one-half centers per area, on the average, do not necessarily lessen the acceptability of the results; they may improve the results.

COUNTIES NOT USED

Several eminent authorities on the subject of trading areas have grouped counties together into areas solely because many of the economic data (retail sales, buying power, population, etc.) were not readily available for pieces of counties. As far as can be determined, authorities on marketing studies do not use counties if the data are available for townships. Fortunately for this study, the Bureau's punch card inventory will provide the necessary detail on physicians by towns with populations of 100 or over; the task of estimating the population of each of these 757 irregularly shaped areas is proving formidable and tedious. Buying power data are not required for population-physician ratios, but their absence from this study would mean that the demand for medical service had not been measured. We may yet attempt to prorate county buying power data to our medical service areas. In no realm of economics can demand be measured by counting the noses of potential buyers; yet counting potential patients per physician has a small degree of validity for limited purposes because of the class price feature of the physician's charges for his services and because of free services that he renders. At least our population-physician ratios for these irregularly shaped nonpolitical areas will be "less worse" than the traditional ratios based on counties. The county is an anachronism even in government.[4] Today the county boundary is no barrier to trade. In particular, the physician is licensed to practice in a state and not in a county. Many of his patients in this day of rapid transportation reside in adjacent counties, adjacent congressional districts or even in an adjacent state. Hence the medical service area provides the only scientific grouping of persons and the physicians who serve them for the purpose of measuring the supply and distribution of physicians.

TO MARKETING AUTHORITIES

Since this study belongs in the field of marketing research as well as in medical economic research, a few comments for students of general marketing problems will orient the results. They will note several features of this map and the data presented in the accompanying table. First, the number of areas, 757, is larger (and the average size smaller) than they would expect.[5] Second, the number of areas with two and even three primary centers is far greater than they would expect. Third, as they would expect, most of the larger areas are in the sparsely populated sections. Fourth, our single set of areas for both the general practitioner and the specialist conceals a number of important marketing factors; most primary centers and some secondary centers contain both. Fifth, the number and extent of medical service area boundaries which coincide with state boundaries will seem excessive to them, for state licensure laws are less of a barrier to interstate medical trading than the understandable tendency of physicians to refer their patients to other physicians in their own state medical society. Sixth, the peculiarities of the medical trading habits of the American people revealed in this progress report will not obscure the close relationship between the medical and the general trading habits of the people in all sections of the county. Seventh, the areas shown on this map will become more meaningful when later superimposed on additional maps showing hard roads, topography, and primary and secondary centers. Eighth, some of these 757 areas do agree rather closely with the areas which would be established by rigid application of Reilly's Law of Retail Trade Gravitation.

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[2] Market Areas for Shopping Lines, Research Department, The Curtis Publishing Company, Philadelphia, 1947.

[3] Retail Trade Areas in Illinois, Business Studies no. 4, Bureau of Economic and Business Research, University of Illinois, Urbana, 1946.

[4] These comments regarding the county as an economic unit are not intended as an appraisal of the county as a unit for medical organization.

[5] For example, there are 498 areas in the Curtis study and 613 in the Hearst study (The Trading Area System of Sales Control for Consumer Durable Goods Industries [a map], Hearst Magazines Incorporated, Marketing Division, 1948).

This is a progress report. Some of the boundaries and areas may yet be altered slightly. The list of primary and prime-primary centers is still subject to additions and deletions. Even the final draft will be subject to subsequent changes in a few years because new centers will be created by the federal-state hospital construction program (Hill-Burton Act). All trading habits of the people are subject to change; the boundaries of political areas within the United States rarely change. The Bureau hopes to replace this informed opinion type of survey someday with a statistical sampling type of survey of the medical trading habits of the American people. All that one can say now is this: Every one in the United States lives in one of the 757 medical service areas and there are physicians in each of these areas on whom persons in the area usually depend for their medical care; although some persons live near the border of each medical service area, and some live in counties which have no physicians, none live outside a medical service area.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* Various Centers. June 20-22, Sept. 12-14. *Part II.* April 25-26. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology, Inc. *Written.* Various Centers. July 15: Final date for filing application is April 15. *Oral.* April 10-14 and Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

American Board of Internal Medicine: *Oral.* Philadelphia, June 1-3. *Written.* Oct. 17. Final date for filing application is May 1. Asst. Sec.-Treas. Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

American Board of Neurological Surgery: *Oral.* Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

American Board of Obstetrics and Gynecology, Inc.: *Oral.* Chicago, May 8-14. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

American Board of Ophthalmology: *Oral.* New York, June 11-15; St. Louis, Oct. 15-19; Boston, December. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

American Board of Orthopaedic Surgery. *Part I.* New York City, April 22-23; Atlanta, Ga., April 29-30; Indianapolis, May 6-7 and Denver, May 13-14. *Part II.* New York City, Jan. 1950. Final date for filing application for Part II is Aug. 15. Address: Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14, Calif.

American Board of Otolaryngology: New York, May 11-14; Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

American Board of Pathology: Boston, April 12-13. Sec., Dr. Robert A. Moore, 507 S. Euclid Ave., St. Louis 10, Mo.

American Board of Pediatrics: *Oral.* Baltimore, May 7-9. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Rd., Rosemont, Pa.

American Board of Physical Medicine. Philadelphia, June 4-5. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

American Board of Plastic Surgery: Examinations are given in June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

American Board of Preventive Medicine and Public Health: Washington, D. C., May 14-16. Sec.-Treas., Dr. Ernest L. Stebbins, 615 North Wolfe St., Baltimore.

American Board of Psychiatry and Neurology, Inc. December, New York City. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Radiology. Atlantic City, June 2-4. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery: *Written.* Various Centers, October 26. Final date for filing application is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

American Board of Urology: Feb. 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

Arkansas:* Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 9-10. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

California: *Examination.* San Francisco, June 20-23. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

Delaware: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

District of Columbia: * *Written,* Washington, May 9-10. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., Washington.

Florida: * *Examination,* Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

Georgia: *Examination.* June 8-9, Atlanta and Augusta. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Guam: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam. % F.P.O., San Francisco, Calif.

Hawaii: * *Examination.* Honolulu, July 11-14. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

Idaho: Boise, July 11-13. Sec., Miss Estella S. Mulliner, Bureau of Occupational Licenses, 355 State House, Boise.

Illinois: Chicago, April 12-14. Supt. of Registration, Mr. Fred W. Ruegg, Capitol Bldg., Springfield.

Indiana: *Examination.* Indianapolis, June 21-23. Sec. Board of Medical Registration and Examination. Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis

Iowa: * *Examination.* Iowa City, June 13-15. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

Kansas: Kansas City, June 1-2. Sec., J. F. Hassig, 905 North 7th St., Kansas City, Kans.

Kentucky: *Examination.* Louisville, June 15-17. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville 2.

Maryland: *Examination.* Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 14-15. Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

Minnesota: * Minneapolis, April 19-21. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: Jackson, June 21-22. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

Missouri: *Examination.* St. Louis, May 30-31 and June 8-10. Exec. Sec., Mr. John A. Hailey, Box 4, Jefferson City.

Nebraska:* *Examination. Omaha, June 6-8. Dir., Bureau of Examining* Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

Nevada: Carson City, May 2. Sec., Dr G. H. Ross, 112 N. Curry Street, Carson City.

New Jersey: *Examination.* Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

New Mexico: * Santa Fe, April 11-12. Sec., Dr. V. E. Berchtold, 141 Palace Ave., Santa Fe.

New York: Albany, Buffalo, New York and Syracue, June 28-July 1, Sec., Dr. Jacob L. Lochner, 23 South Pearl St., Albany.

North Carolina: *Endorsement.* Pinehurst, May 9. *Examination.* Raleigh, June 23-25. Sec., Dr. Ivan Procter, 226 Hillsboro St., Raleigh.

North Dakota: * *Written,* Grand Forks, July 5-7. *Reciprocity,* Grand Forks, July 8. Sec., Dr. C. J. Glaspel, Grafton.

Oklahoma: * Oklahoma City, June 8-9. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon: * *Endorsement.* Portland, April 29-30. *Examination.* Portland, July. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

Pennsylvania: *Examination.* Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.

Puerto Rico: San Juan, Sept. 6-10. Sec., Dr. Luis Cueto Coll, Box 3717, Santurce.

Rhode Island:* *Examination.* Providence, July 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Carolina: *Examination.* Columbia, June 27-29. *Endorsement.* Columbia, May 2, June 27-28, Aug. 1, Sept. 5 and Oct. 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

South Dakota: * *Examination.* Pierre, July 19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

Texas: *Examination* Austin, June 16-18. Sec., Dr. M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2

Utah: *Examination.* Salt Lake City, July. Sec., Dept of Registration. Miss Rena B. Loomis. 324 State Capitol Bldg., Salt Lake City.

Virginia: *Examination.* Richmond, June 17-18. *Reciprocity.* Richmond, June 16. Dr. K. D. Graves, 631 First St., S.W., Roanoke.

Washington: *. Seattle, July. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

Wisconsin: * *Examination.* Milwaukee, June 28-30. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

Wyoming: Cheyenne, June 20. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne

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* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arkansas: *Examination.* Little Rock, May 3. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.

Colorado: *Examination.* Denver, June 1-2. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

Connecticut: New Haven, June 11. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., New Haven 10.

District of Columbia: *Examination.* Washington, April 18-19 Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., Washington.

Florida: *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

Iowa: *Examination.* Des Moines, April 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Michigan: *Examination.* Detroit and Ann Arbor, May 13-14 Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

Minnesota: *Examination.* June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

Oklahoma: April 15. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon: Portland, June 18, Sept. 3 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

South Dakota: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St., Yankton.

Tennessee: Memphis, July 8-9. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

Wisconsin: Milwaukee, June 4. Sec., Prof. W. H. Barber, Ripon College, Ripon.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

18:141-176 (Dec.) 1948

Ovarian Tumors Complicating Pregnancy. R. F. Monroe, L. A. Kremer and W. R. Witt.—p. 141.
Congenital Hemolytic Icterus: Report of Case. R. C. Day and Jane M. Day – p. 155
Present Day Status of Thoracic Surgery. C. J. Donald Jr.—p. 159.

American Journal of Diseases of Children, Chicago

75:493-636 (April) 1948

*Para-Aminobenzoic Acid in Treatment of Rocky Mountain Spotted Fever. L. E. Fraser, H. Rosenblum and J. A. Danciger.—p. 493.
*Detection of Mild Types of Mediterranean (Cooley's) Anemia. C. H. Smith.—p. 505.
Rooting Reflex in Newborn Infant: Incidence and Effect on It of Sleep. Elizabeth F. Gentry and C. A. Aldrich.—p. 528.
Psychologic Management of Children with Glomerular Nephritis. E. C. Persike and R. W. Lippman.—p. 540.
Congenital Pneumonitis in Newborn Infants. J. M. Adams.—p. 544.
Tuberculosis in Children. O. Auerbach.—p. 555.
Large Solitary Pancreatic Cyst and Other Developmental Errors in Premature Infant. Cornelia de Lange and Tieline A. E. Janssen. —p. 587.
Gargoylism (Lipochondrodystrophy): Review of Clinical Observations in 18 Cases. W. A. Reilly and S. Lindsay.—p. 595.

Para-Aminobenzoic Acid in Rocky Mountain Spotted Fever.—Fraser and his co-workers state that 4 of 6 children with Rocky Mountain fever were treated with para-aminobenzoic acid. Three of the treated children, for whom therapy was begun on the eighth or ninth day of illness, responded rapidly. The drug was considered of definite value for these children. A child whose treatment was instituted on the thirteenth day died. The authors do not agree with previous reports that para-aminobenzoic acid is a drug of low toxicity, since in 1 of these children extreme acidosis developed. It is true that the blood level of the drug was extremely high. Administration of an adequate amount of base in some form is recommended, with careful following of the blood levels, urinary findings and carbon dioxide–combining power. The complications of delirium and mental confusion probably are due to varying degrees of acidosis rather than to the drug per se, although the disease itself may produce delirium and acidosis. An incidental observation of a reducing substance in the urine is reported. The authors say that since they wrote this article sodium salt of para-aminobenzoic acid has become available. This compound was used in later cases, and acidosis was not noted. A convenient dosage plan was outlined by Ravenel, who recommended administration of 0.5 to 1 Gm. per pound of body weight per day in divided doses, depending on the size of the child, larger patients receiving the smaller and smaller patients the larger dose.

Mediterranean (Cooley's) Anemia.—While severe forms of Mediterranean anemia are readily diagnosed, the milder form is usually overlooked. The report by Smith was prompted by the increasing frequency with which this milder type has been encountered in the Children's Clinic of the New York Hospital and by the probability that it is also prevalent in other communities with large Mediterranean populations. Carriers of this trait constitute a potential source for the hereditary transmission of the disease. This study is based on the results of examinations of the blood of 181 persons in forty-seven families with Mediterranean anemia (familial erythroblastic anemia). It demonstrates the frequency of the mild form of this disease. While the roentgenographic changes and severe clinical manifestations that characterize the severe form of Cooley's anemia are absent in the person with the mild form of the disease, the changes in the blood are distinctive and readily demonstrable. In these persons polycythemia may occur, with normal or lowered hemoglobin levels, and basophilic stippling may be sufficiently pronounced to suggest lead poisoning. The data presented support the hereditary principles that in no family with an affected child were both parents free from the disease and that in every case of a severely anemic child's requiring periodic transfusions both parents revealed abnormalities of the blood. In every one of the sixteen families with a severely anemic child both parents bore the trait for the disease. Since appropriate laboratory procedures permit the differentiation of the carrier from the normal persons, it may be possible with more extensive experience to furnish genetic information concerning the likelihood of the occurrence of the severe type of this disease in future pregnancies.

American Journal of Hygiene, Baltimore

48:253-410 (Nov.) 1948

Studies of 1943 Epidemic of Influenza A: I. Introduction. J. H. Dingle and others.—p. 253.
Id.: II. Comparison of Clinical and Laboratory Characteristics of Influenza A and Undifferentiated Acute Respiratory Disease (ARD). J. H. Dingle and others.—p. 263.
Id.: III. Reliability of Immunological Methods for Diagnosis of Influenza. J. H. Dingle and others.—p. 276.
*Id.: IV. Antibody Response to Infection. J. H. Dingle and others. —p. 287.
*Id.: V. Distribution of Influenza Virus. J. H. Dingle and others. —p. 292.
Id : VI. Epidemiological Characteristics in Varied Types of Military Units and Comparison with Undifferentiated Acute Respiratory Disease. J. H. Dingle and others.—p. 305.
Id.: VII. Relative Frequency of Recognized and Inapparent Infections, Relation Between Antibody Titer and Susceptibility, and Change in Antibody Status of Selected Population. J. H. Dingle and others. —p. 324.
Id.: VIII. General Discussion and Summary. J. H. Dingle and others.—p. 332.
Laboratory Experiments with Selection of Oviposition Site by Anopheles Darlingi. J. de Zulueta and M. Bates.—p. 350.
Peripheral Inoculation of Lansing Poliomyelitis Virus in Rodents: Susceptibility and Development of Immunity. M. R. Pinto.—p. 361.
Experimental Studies of Variables in Neutralization Tests with Lansing Poliomyelitis Virus. E. J. Bell.—p. 381.
Immunization of Monkeys with Formalin-Inactivated Poliomyelitis Viruses. Isabel M. Morgan.—p. 394.

Antibody Response to Influenza A Infection.—Analysis of data pertaining to the antibody response to infection during the 1943 epidemic of influenza A indicated that agglutination-inhibition titers to influenza virus A began to increase, as a rule, within ten days after the onset of illness. Maximum titers were reached during the second or third week after onset. Titers were generally at their height near the twentieth day and remained at or near their highest level for at least a month. Average antibody titers fell three to six months after onset, but were still above the initial level one hundred days after onset in 30 patients, and a year after illness in 4 patients. During the epidemic period 3 patients were observed with serologic evidence of infection with influenza virus B and 1 patient with evidence of simultaneous infection with influenza viruses A and B.

Distribution of Influenza A Virus.—In a study of the distribution of influenza virus A during and after an epidemic, the agent was demonstrated only in throat washings from persons who had some clinical evidence of respiratory illness and whose serums showed an increase in antibodies to influenza virus A. Examination of washings from hospitalized patients and well soldiers lacking an antibody response failed to give evidence of the presence of the virus. The agent was detected in 28 of 46 patients whose illnesses were serologically diagnosed as influenza, and in 2 of 15 soldiers in the field whose serums showed an antibody response. There was no striking difference in the frequency of detection of virus in washings from persons with a slight increase in antibody titer in comparison with those from subjects showing a decided increase in titer. Embryonated eggs being used, virus was not detected in washings collected more than six days after the onset of illness. In contrast, evidence was obtained, by inoculation of animals, for persistence of virus in the throat for seven to thirty-five days after the onset of influenza. Further confirmation is required, since the possibility of cross infection in some of them cannot be excluded.

American Journal of Medical Sciences, Philadelphia

216:485-604 (Nov.) 1948

Massive Hypertrophy of Heart with Special Reference to Bernheim's Syndrome. L. R. Evans and P. D. White.—p. 485.
*Evaluation of Esophageal Electrocardiograms in Diagnosis of Healed Posterior Myocardial Infarction. H. B. Burchell.—p. 492.
Familial Interauricular Septal Defect with Mitral Stenosis (Lutembacher's Syndrome). S. R. Courter, B. Felson and J. McGuire. —p. 501.
*Probably Grave Significance of Premature Beats Occurring in Angina Pectoris Induced by Effort. W. B. Porter.—p. 509.
Insensible Loss of Water in Congestive Heart Failure. C. J. D'Alton, R. C. Darling and Ethel Shea.—p. 516.
Use of Acetylcholine in Objective Determination of Circulation Time in Man. J. G. Schlichter, M. Wilburne and M. Grossman.—p. 523.
Method for Studying Effect of Various Substances upon Red Cell Maturation In-Vitro. E. E. Hays.—p. 528.
Observations Concerning Effects of Blood upon Action of Digitalis Glycoside. R. Bine Jr. and M. Friedman.—p. 534.
Congenital Hemolytic Icterus in the Negro. R. R. McCormack and E. P. Simon.—p. 539.
Anicteric Hepatitis: Report of 9 Sporadic Cases. H. J. Zimmerman and L. J. Thomas.—p. 545.
*Ornithosis (Psittacosis), Review with Report of 8 Cases Resulting from Contact with Domestic Pekin Duck. W. Wolins.—p. 551.
Postvaccinal Encephalitis: Report of 45 Cases in New York City. M. Greenberg and E. Appelbaum.—p. 565.
Roentgenologic Manifestations of Scleroderma. D. G. Pugh.—p. 571.
Treatment of the Leukemias. G. L. Kauer Jr.—p. 581.

Esophageal Electrocardiograms.—Burchell points out that when typical electrocardiographic QRS patterns exist, wherein the left leg is initially negative to both the right arm and left arm with a resulting Q_2 and Q_3, the picture may be diagnostic of a previous infarction located in the posterior or diaphragmatic wall of the heart. When only a deep Q_3 is present, interpretation of it in respect to previous infarction tends to become a question of statistical probability. Experience at the Mayo Clinic with esophageal electrocardiography in attempting to elucidate the Q_3 problem has been scattered over the past ten years. The conclusion has been reached that electrocardiograms made with the electrode in the lower part of the esophagus and stomach are sometimes of great value in confirming a diagnosis of healed posterior myocardial infarction, but sometimes they are normal or are not definitely diagnostic even when the heart is known to contain a scar in the posterior myocardial wall. Esophageal electrocardiograms which might be regarded as diagnostic of old posterior myocardial infarction, particularly those with QS deflections followed by a deeply inverted T wave, have usually been associated with a suggestive or diagnostic Q_2Q_3 pattern in the standard leads in this study. When esophageal leads are used to elucidate the clinical significance of a deep Q_3 in cases in which such a Q_3 is the only finding leading to the suspicion of previous myocardial infarction, the findings are frequently of equivocal nature.

Premature Beats in Angina Pectoris.—In the test described by Porter the patient is required to exercise only sufficiently to reproduce the subjective symptoms from which he is seeking relief. This exercise procedure is carried out under the supervision of a trained observer. Its type and duration vary greatly from patient to patient, depending on the exercise tolerance of the individual. Electrocardiograms are made before, during and after induced attacks of the primary complaint. No accidents have resulted from these studies. The most significant change in the electrocardiograms in attacks of induced angina pectoris has been the occurrence in 4 patients of premature ventricular beats. With one exception these 4 patients had few signs of cardiovascular disease, and resting electrocardiograms were equivocal in all 4. Premature beats occurring at the peak of induced angina and cardiac acceleration were the most significant changes in the electrocardiogram. The ectopic beats and pain disappeared with rest and cardiac slowing. In 2 of the patients exercise tolerance was greatly increased by quinidine sulfate, which prevented the occurrence of premature beats with effort. It is suggested that the occurrence of premature beats, especially pulsus bigeminus in an episode of effort angina, may have grave prognostic significance. Quinidine sulfate can profitably be used in the type of patients under discussion. The dose must be conservative, 0.2 to 0.4 Gm. three times daily equally spaced during the period of physical activity.

Ornithosis Following Contact with Domestic Pekin Duck.—Wolins says that the prediction by Meyer and Eddie that barnyard fowl may be a reservoir of ornithosis is fulfilled in this communication in which all but 1 of the 8 clinical patients were in intimate contact with the domestic duck. These birds are grown in tremendous numbers (7,000,000 annually) on a number of farms located in the eastern end of Long Island. Mild or moderate illness predominated, and there were no deaths. Evidences of a frank pneumonic process are not necessarily the accompaniment of infection, nor is there any direct correlation between the severity of the illness and the changes in the chest. The epidemiologic background of the clinical material suggests that immunity to ornithosis develops in many perons after long exposure or latent infection and that the immunity so acquired may wane unless there is constant reexposure. Penicillin in doses of 50,000 units every three hours was sufficient to produce prompt recovery in 4 out of 6 patients.

American Journal of Physiology, Baltimore

154:185-368 (Aug.) 1948. **Partial Index**

Plasma Inorganic Phosphate Concentration and Hyperventilation in Dog. G. S. Campbell, E. B. Brown Jr. and F. Gollan.—p. 185.
Effects of Altitude Anoxia on Renal Function. R. K. McDonald and V. C. Kelley.—p. 193.
Effects of Alterations in Body Temperature on Properties of Convulsive Seizures in Rats. E. A. Swinyard and J. E. P. Toman. —p. 207.
Excretion of Bilirubin and Bromsulfalein in Bile. A. Cantarow, C. W. Wirts, W. J. Snape and L. L. Miller.—p. 211.
Renal Function in Normal Rabbits and Dogs and Effect of Uranyl Salts. J. H. Wills and Edna Main.—p. 220.
Unilateral Adrenalectomy, Unilateral Splanchnic Nerve Resection and Homolateral Renal Function. J. P. Kriss, P. H. Futcher and M. L. Goldman.—p. 229.
Study of Simultaneous Right and Left Atrial Pressure Pulses Under Normal and Experimentally Altered Conditions. D. F. Opdyke, J. Duomarco, W. H. Dillon and others.—p. 258.
Dynamic Effect of Inspiration on Simultaneous Stroke Volumes of Right and Left Ventricles. R. D. Seely.—p. 273.
Cardiodynamics of Experimental Interventricular Communications. W. H. Dillon and H. Schreiber Jr.—p. 281.
Comparison of Cardiac Output by Direct Method and Hamilton-Remington Procedure. J. L. Duomarco, W. H. Dillon and C. J. Wiggers. —p. 290.
Experimental Hemorrhagic Shock; Study of Its Production and Treatment. O. Glasser and I. H. Page.—p. 297.
Mechanism of Arterial Pressure Response to Valsalva Test: Basis for Its Use as Indicator of Intactness of Sympathetic Outflow. S. J. Sarnoff, Esther Hardenbergh and J. L. Whittenberger.—p. 316.
Cardiac Effects of Intravenous Injection of Small Volumes of Strongly Hypertonic Solutions. W. W. Walcott and I. J. Deyrup.—p. 328.
Nervous Control of Cervical Portion of Esophagus. K. Hwang, M. I. Grossman and A. C. Ivy.—p. 343.
Effect of Secretin and Pancreozymin on Amylase and Alkaline Phosphatase Secretion by Pancreas in Dogs. C. C. Wang, M. I. Grossman and A. C. Ivy.—p. 358.

American Journal of Psychiatry, New York

105:321-400 (Nov.) 1948

Atomic Energy in Medicine. J. Z. Bowers.—p. 321.
Recent Progress in Research on Neurophysiologic Basis of Morphine Addiction. A. Wikler.—p. 329.
Report of Spontaneous Recovery in 2 Cases of Advanced Schizophrenic Organismic Stagnation. O. H. Boltz.—p. 339.
Hospital Treatment of Dementia Praecox. D. M. Hamilton and J. H. Wall.—p. 346.
Exploratory Training Technic for Re-Education of Catatonics. P. E. Roland.—p. 353.
Psychoanalytic Contribution to Treatment of Behavior Problems in Children. S. Lorand.—p. 357.
*Impaired Cerebral Functions in Chronic Brucellosis. N. S. Apter, W. C. Halstead, C. W. Eisele and N. B. McCullough.—p. 361.
Verbal Hallucinations and Activity of Vocal Musculature: Electromyographic Study. L. N. Gould.—p. 367.
Fatalities Resulting from Treatment with Subshock Doses of Insulin. N. Malamud.—p. 373.
Value of Rorschach Test in Differential Diagnosis. R. J. Young.—p. 381.
Group Psychotherapy with Psychotic Patients and Their Relatives. W. D. Ross.—p. 383.

Impaired Cerebral Functions in Chronic Brucellosis.—This report by Apter and his associates is based on studies of 10 patients with brucellosis who were evaluated by the internist, neuropsychiatrist and experimental psychologist. Four case histories which point up characteristic changes in the 10 patients are presented. Patients with brucellosis with severe personality changes may also have a measurable impairment of intelligence. The degree of impairment for some is comparable with that seen in patients with surgical removal of the prefrontal lobes. The clinical patterns in the first 3 cases reveal measured impairment of biologic intelligence and a deterioration of adaptive capacities or ego functions. Evidence for disturbances in ego functions were obtained by three methods: the clinical psychiatric, by which changes in social relations were evaluated in respect to the basic personality structure; the neuropsychologic, by which biologic intelligence was quantitatively estimated, and the internist's evaluation, by which the primary diagnosis was established and the possibility rendered remote that other concurrent diseases were responsible for the observed brain damage. The patients with chronic brucellosis who have deficiencies in biologic intelligence may present a distinct clinical picture. They complain of headache, easy fatigability, inability to return to work, loss of former skills, insomnia and decreased ability to adapt in social situations. Their psychiatric state is characterized by defects in the intellectual sphere, impoverished emotional expression, reduction in motility, inability to plan for the future and failure to establish ordinary rapport.

American Journal of Surgery, New York

76:461-636 (Nov.) 1948. Partial Index

Traumatic Rupture of Gallbladder and Liver: Report of Case with Generalized Bile Peritonitis. C. E. Newell.—p. 466.
Perforation of Small Intestine from Non-Penetrating Abdominal Trauma. B. M. Bosworth.—p. 472.
*Role of Chemotherapy in Wounds and Surgical Infections: Study of Significance of Gram-Negative Pathogens in Fresh Trauma and Chronic Infections. D. Ackman and F. Smith.—p. 483.
Significance of Gram-Negative Pathogens in Reconstructive Surgery. J. Gerrie.—p. 490.
Late Joint Changes as Result of Internal Derangements of Knee. R. K. Ghormley.—p. 496.
Some Uses of Undetached Omentum in Surgery. J. E. Cannaday. —p. 502.
Twenty-Five Easy Ways of Getting into Trouble in Care of Fractures. F. B. Gurd.—p. 506.
Experiments on Holding Powers of Various Types of Metallic Internal Fixation for Transcervical Fractures of Femur. P. H. Harmon, D. R. Baker and J. H. Reno.—p. 515.
End Results in 77 Consecutive Fresh Fractures of Neck of Femur. J. T. F. Gallagher.—p. 525.
Intracapsular Fractures of Neck of Femur: Follow-Up Report of 130 Patients Treated by Internal Fixation with the Smith-Petersen Nail. C. S. Neer and H. L. McLaughlin.—p. 528.
Trauma Resulting From Atomic Explosions. R. P. Parsons.—p. 559.
Massive Extradural Hematoma. J. Raaf.—p. 567.
Restoration and Preservation of Arterial Continuity Following Trauma. L. Breidenbach and J. W. Lord Jr.—p. 578.
*Management of Venous Thrombosis and Pulmonary Embolism Following Injury to Extremities. F. B. Aurin and L. G. Herrmann.—p. 586.
*Local Application of Aluminum Foil and Other Substances in Burn Therapy. W. A. Brown, A. W. Farmer and W. R. Franks.—p. 594.
Herniation of Fascial Fat: Cause of Low Back Pain. D. C. Hucherson and J. R. Gandy.—p. 605.
Amputation of Extremities. S. A. Swenson Jr. and J. D. Bisgard. —p. 610.
End Results of Certain Procedures in Surgery of Trauma. W. C. Smith.—p. 619.
Management of Compound Facial Injuries. J. B. Brown and M. P. Fryer.—p. 625.
*Electric Burns of Head and Arm with Residual Damage to Eyes and Brain. J. P. North.—p. 631.

Chemotherapy in Wounds and Surgical Infections.—Ackman and Smith dealt in a previous report with contamination of fresh wounds and preexisting infections with gram-positive pyogenic bacteria. In this paper they discuss the significance of gram-negative pathogens in fresh trauma and preexisting infections as reflected in clinical and bacteriologic studies on 54 patients from the surgical wards of the Montreal General Hospital. They stress that gram-negative pathogens are not frequent contaminants, since only 26 cases with such contaminants were detected in over 250 cases of fresh trauma and 28 cases in over 300 surgical infections. They are most often found in lesions of the lower extremities. In fresh trauma, despite their persistence, these organisms show almost no tendency toward invasive infection when sound wound management is applied and circulation is adequate. Consequently delayed revision surgery and skin grafting may be done with relative impunity. In preexisting surgical infections with gram-negative pathogens, revision grafting or surgery is almost equally immune when local and general physiologic conditions are satisfactory, even though contamination be gross. Adequate blood supply and all other physiologic conditions should be zealously protected in every wound or surgical infection. These physiologic conditions are well maintained locally by occlusive compression dressings that are infrequently changed. The authors believe strongly in the role played by these dressings in wound healing. Such bacteriostatics and antibiotics as they have used topically, including sulfathiazole, penicillin and streptomycin in cream bases, have failed to eliminate gram-negative pathogens in 54 cases of fresh trauma and surgical infections. Streptomycin in a cream base has quickly and regularly caused "fast" organisms in 4 instances. Contrary to these results the authors have been greatly encouraged in this work by these more recent experiences with streptomycin. When invasion by gram-negative organisms does occur, intramuscular administration of streptomycin has given encouraging results in a few instances so far observed. The authors have seen an apparent synergistic effect between penicillin and streptomycin in 1 instance.

Venous Thrombosis and Pulmonary Embolism Following Injury to Extremities.—Aurin and Herrmann observed that the incidence of venous thrombosis in patients who have sustained injury to the legs is almost 12 per cent, while venous thrombosis in general surgical patients is only about 2 per cent. They review observations on 92 patients with fractures of the pelvis or lower extremity who were admitted to their hospital in the course of three months. Among this group there were 12 cases of venous thrombosis with or without pulmonary embolism. These 12 cases are analyzed. They feel that the real solution to the problem lies in the prevention of venous thrombosis rather than in limitation of the process. It is most important, therefore, to examine each patient carefully for evidence of venous thrombosis so long as he remains bedridden. Among patients with fractures of the lower extremities there are many elderly persons who are particularly susceptible to the development of venous thrombosis. Since the occurrence of deep venous thrombosis is so closely related to inactivity and recumbency, early and continued active motion while the patient is still in bed is an important prophylactic measure. Measures preventive of stasis of blood in veins of the lower extremities such as frequent change of position, elevation of the foot of the bed and, most important, movement of the muscles of the lower extremities must be carried out. Once peripheral venous thrombosis has occurred, early recognition of its presence is essential to proper therapy. Its limitation to the affected extremity and the prevention of pulmonary embolism are best accomplished by the use of anticoagulant therapy.

Aluminum Foil in Burn Therapy.—Brown and his associates show that aluminum foil, at a thickness of 0.001 inch, can readily be molded on the contours of the body. Thicker foils were found to be more unwieldy. On the other hand, foil as thin as 0.0004 inch has been used and, although it could be applied with ease, fragmentation occurred, with the result that its removal piece by piece from the burn surface on the tenth day was tedious. All foils were permeable sheets; holes transmitting light could be seen when a sheet was held up to light. The application of aluminum foil to the burn surface is performed as follows: 1. After adequate sedation, the burn area is cleansed with 1 per cent aqueous cetyltrimethylammonium bromide (cetavalon®); sluiced clean with saline solution and blotted dry with a sterile towel. 2. Dry aluminum foil which has been sterilized by autoclaving is smoothed by hand onto the burn surface. 3. The routine pressure dressing is then applied over the foil. Aluminum foil has been used as the initial dressing for burns in 50 cases. For comparison portions of the burn surface of 9 patients treated with aluminum foil were covered with one of four other metals. The local results at ten days in 8 cases were equal to the remaining areas covered with aluminum foil. The gold and silver leaf was found to be fragmented and adherent to the dressings or the burn surface. Aluminum foil diminishes the maceration of a burn surface. The method appeared to facilitate the dispersion of exudate to the periphery of the burn. No evidence of toxicity was found. Titanium dioxide exposure cream as a burn ointment was irritating; it produced pain, delay in healing and possibly caused destruction of epithelial remnants. Massive doses of ascorbic acid administered to burn patients quickly corrected the ascorbic acid depletion, but the systemic reaction to thermal burns was not changed by this treatment. Blood glutathione levels were not influenced by thermal burns and bore no consistent relationship to changes in serum ascorbic acid levels.

Electric Burns of Head with Residual Damage to Eyes and Brain.—North shows that even though voltage may be known the actual quantity of current (amperage) cannot be calculated in a case of electrical injury because of the wide range of the resistance offered by different body tissues. Survival of the patient is determined more by the path which the current takes through the body than by its intensity. There is general agreement that a current passing through the chest is most likely to be lethal, because of its effects on the heart. The 26 year old man whose case is reported by North was on the roof of a house which was being moved, fending off overhanging electric wires. It appears that he was grasping a metallic strip along the ridge of the roof with his left hand. A wire, carrying a current of 7,200 volts, made contact with the metal strip. The patient later recalled a blinding flash and believed that as he recoiled the back of his head touched a second high tension wire. The patient sustained a severe electric burn of head and arm. Although his left arm had to be amputated at the shoulder he survived the injury. The burn on the back of his head was grafted. Virtually the entire occipital bone sequestrated and was removed. Bilateral cataracts and optic nerve atrophy developed. The brain underlying the burned area was injured, leaving him with obvious but diminishing residual damage to the occipital lobe, cerebellum and parietal cortex. Despite improvement with the passage of time, some of these residual changes are expected to be permanent.

American Practitioner, Philadelphia

3:197-260 (Dec.) 1948

Anatomic Evaluation of Jet Injection Instrument Designed to Minimize Pain and Inconvenience of Parenteral Therapy. F. H. J. Figge and D. J. Barnett.—p. 197.
Hoffmann Reflex. J. G. Weiner.—p. 207.
Fetal Care in Obstetrics. A. W. Diddle and R. J. Jennett.—p. 209.
Hepatitis—Clinical Evaluation. G. G. Duncan.—p. 214.
Amebiasis in Veterans of World War II. M. A. Spellberg and S. Zivin. —p. 221.
Intestinal Obstruction at Extremes of Life: Report of 2 Cases. M. J. Loeb.—p. 227.
Anticonvulsant Drugs: History and Development of Drugs Used in Treatment of Epilepsy. R. N. DeJong.—p. 233.
*Conditions Commonly Mistaken for Coronary Occlusion and Angina Pectoris. H. B. Sprague.—p. 238.

Conditions Mistaken for Coronary Occlusion and Angina Pectoris.—Sprague states that while the electrocardiograph has added immeasurably to our ability to recognize myocardial infarction, in inexpert hands it has been overused to diagnose coronary disease on the basis of nonspecific changes which occur with infections, with a multitude of disturbances in vagosympathetic balance and in metabolic, chemical, nutritional and other disorders. Coronary artery disease, by definition, implies that its victim is potentially in danger of sudden death, whereas this is rarely true of the conditions mistaken for angina pectoris and other gradations of coronary insufficiency, including myocardial infarction. The author cites a report by Herrick in which twenty-eight conditions were listed that had been confused with coronary occlusion. Sprague is concerned chiefly with the following: pulmonary embolism, acute pericarditis, dissecting aortic aneurysm, ectopic cardiac rhythms and cerebrovascular attacks. As conditions confused with angina pectoris he mentions: (1) herpes zoster with pain preceding the skin eruption by several months; (2) cardiospasm, often aggravated by tobacco; (3) esophageal ulcer and (4) cardiac neurosis. A careful history is more important than any test in the diagnosis of angina pectoris, or other gradation of coronary insufficiency, short of that producing electrical disturbances in heart muscle. Beyond the critical limits of myocardial ischemia which is reflected by electrocardiographic abnormalities, the clinician must, if possible, determine the amount of heart damage attributable to coronary disease and that due to the temporary acute insult, such as pulmonary embolism, hemorrhage, severe exertion, abnormal rhythm, anoxia or other disturbance of coronary equilibrium. The greater the strain on the circulation, the less the underlying coronary disease that need be predicated when the electrocardiogram indicates myocardial anoxia.

Annals of Surgery, Philadelphia

128:881-1040 (Nov.) 1948. Partial Index

Observations on Visceral Pain: I. Visceral Tenderness. F. H. Bentley. —p. 881.
*Hemophilia: Problem of Surgical Intervention for Accompanying Diseases; Review of Literature and Report of Case. C. G. Craddock Jr., L. D. Fenninger and B. Simmons.—p. 888.
*Reduction of Intussusception by Barium Enema: Clinical and Experimental Study. M. M. Ravitch and R. M. McCune Jr.—p. 904.
Primary "Inflammatory" Carcinoma of Breast: Report of 5 Cases and Review of Literature. B. A. Donnelly.—p. 918.
*Silent Gallstone: Ten to Twenty Year Follow-Up Study of 112 Cases. M. W. Comfort, H. K. Gray and J. M. Wilson.—p. 931.
Thoraco-Abdominal Approach for Portacaval Anastomosis with Case Report of Portacaval Shunt Employing This Method. V. P. Satinsky. —p. 938.
Right Thoraco-Abdominal Approach. J. P. Heaney and G. H. Humphreys II.—p. 948.
Experience with Three Thousand Cases of Brachial Plexus Block; Its Dangers: Report of Fatal Case. J. S. de Pablo and J. Diez-Mallo. —p. 956.
Femoral Hernia: Technic of Repair. J. E. Strode.—p. 965.
Results of Treatment of Perforation of Esophagus. E. E. Jemerin. —p. 971.
Treatment of Pancreatic Cysts. J. Gurwitz and A. Hurwitz.—p. 976.
Oral Streptomycin in Surgery of Large Bowel: Production of Secondary Hypoprothrombinemia. R. A. Herfort and S. Standard.—p. 987.
Control of Common Iliac Artery During Sacroiliac Disarticulation (Hemipelvectomy). R. A. Wise.—p. 993.
Severe Crushing Injury to Chest: Report of Case Having Extensive Bilateral Rib Fractures Successfully Treated by Pericostal Skeletal Traction. M. H. Williams.—p. 1006.
Herniation of Heart: Through a Pericardial Incision. R. B. Bettman and W. J. Tannenbaum.—p. 1012.
Mycetoma—Madura Foot: Case of Mycetoma Pedis in Chicago. R. Green, T. C. Bolton and C. L. Woolsey.—p. 1015.
Cholecystitis Due to Giardia Lamblia in Left-Sided Gallbladder. J. M. McGowan, C. C. Nussbaum and E. W. Burroughs.—p. 1032.

Surgical Intervention in Hemophilia.—Craddock and his associates call attention to the fact that there is lack of unanimity of opinion as to the best course to follow in patients with hemophilia in whom acute surgical conditions develop. After a review of the literature, the authors present the history of a patient, aged 27, who had hemophilia and required an operation for appendicitis. This patient died four days after operation in spite of intensive antihemorrhagic therapy. Necropsy revealed pulmonary edema, bilateral hemothorax and a large blood clot in the appendical bed extending along the right peritoneal gutter from the pelvis to the liver. There was also an extensive hematoma at the site of the abdominal wound, not communicating with the peritoneal cavity. The mortality following internal surgery in established cases of hemophilia is relatively high. Of 4 previously reported patients in whom the diagnosis of hemophilia was unequivocal, 2 died from hemorrhage following operation, while 2 recovered. The other eleven reports of internal surgical procedures in patients with bleeding tendencies were excluded from this analysis because of inadequate basis for the diagnosis of hemophilia. If these were included, the total number of recoveries following operation would be 11 with only 4 deaths, or a mortality rate of 26.7 per cent, a figure the authors believe to be erroneously low. They discuss the significance of continued hemorrhage in the presence of a normal in vitro clotting time and of its relation to the fundamental defect in hemophilia. Emphasis is placed on the failure of the coagulation time to indicate the severity of the hemorrhagic tendency or the degree of response to treatment, the difficulty in choosing a suitable case for operation and the great difference in controlling internal hemorrhage as opposed to bleeding from an external site.

Reduction of Intussusception by Barium Enema.—Ravitch and McCune direct attention to the high mortality rate resulting from the surgical treatment of intussusception. Describing the barium technic, they say that as soon as the presumptive diagnosis of intussusception is made, the child is taken to the fluoroscopic room. At the same time, the operating room is alerted. Without anesthesia, an unlubricated Foley bag catheter is inserted in the rectum. The bag is distended with 20 to 40 cc. of air according to the size of the patient, and barium is permitted to run in from a height of 3 feet (91.4 cm.). It is important not to lubricate the catheter, as it will then be more easily retained. It is essential for an assistant to squeeze the buttocks together throughout the procedure. The barium usually runs rapidly to the intussusception, which it outlines, producing a concave meniscus. The ends of the meniscus extend proximally until suddenly the intussusceptum gives ground. The meniscus flattens out, then begins to deepen again, and so on. This may take place quickly. At other times there is a stubborn hang at one level or another and then sudden progress. The chief difficulty may be in deciding on completeness of reduction at the cecum. By displacing the cecum laterally one may see barium well up in the small bowel. If complete reduction is not achieved, the child is permitted to expel the enema and the effort is repeated. If the third such injection is unsuccessful, operation is performed. The authors stress that reduction by hydrostatic pressure is a safer primary intervention in intussusception than is surgical treatment.

The Silent Gallstone: Study of 112 Cases.—Comfort and his associates found wide divergence of opinion and a lack of accurate data in the literature on the problem of the silent gallstone. In the hope of supplying some of the data not now available but necessary for the decision regarding treatment of the silent gallstone, a long term follow-up study of all cases in which gallstones were found incidentally during the course of some other abdominal operations at the Mayo Clinic was carried out. The records of 998 such cases were reviewed. Many of these were discarded as unsuitable for a long term follow-up, because the operation had been for cancer. Many others, including those with duodenal ulcer, were discarded because some of the abdominal symptoms might have been due to the cholelithiasis. Follow-up letters were sent to 184 persons. Replies were received from 115. One hundred and twelve cases were considered suitable for study. In 61 cases no symptoms developed. In the 51 cases in which symptoms occurred, 30 patients complained only of dyspepsia and 21 experienced painful seizures. Five of the 21 patients experiencing painful seizures also had jaundice. Cholecystectomy may be advised but need not be urged, if the patient prefers to accept the chance of experiencing painful seizures or the increased risk of surgical treatment in the event the complication of calculous disease of the biliary tract appears. Many patients will prefer to have gallstones removed in order to eliminate the threat of painful seizures or severe complications. Others, knowing the higher risk of surgical intervention should complications develop, will prefer to take the chance that no symptoms will develop. Surgical treatment of the silent gallstone may be classified as optional or elective surgery, but surgical intervention should not be postponed after symptoms, and more especially after attacks of colic appear.

Archives of Dermatology and Syphilology, Chicago

57:923-1070 (June) 1948

The Many-Sided Pusey. O. H. Foerster.—p. 923.
Tumors of Testicle with Dermatologic Sequelae. T. W. Murrell and A. W. Pepple.—p. 930.
*Therapeutic Value of Ammoniacal Silver Nitrate in Fungous Infections of Nails. W. J. Nickerson and S. J. White.—p. 935.
Penicillin Therapy of Yaws and Serologic Results. C. R. Rein, T. H. Sternberg, J. H. Dwinelle and A. J. Sheldon.—p. 942.
*Tocopherols (Vitamin E): Treatment of Lupus Erythematosus; Preliminary Report. J. F. Burgess and J. E. Pritchard.—p. 953.
Penicillin in Treatment of Experimental Syphilis of Rabbits: IV. Synergistic or Additive Activity of Penicillin by Oral Administration with Oxophenarsine Hydrochloride ("Mapharsen") by Intravenous and Intramuscular Injection and Bismuth Salicylate by Intramuscular Injection. J. A. Kolmer.—p. 965.
Causative Diagnosis of Contact Dermatitis: II. Classification of Patterns on Hands. *G. L. Waldbott and J. J. Shea.—p. 975.*
Low and High Temperature Coal Tars in Treatment of Eczema and Psoriasis: Clinical Investigation and Evaluation. J. G. Downing and C. W. Bauer.—p. 985.
In Vitro Studies of Microsporon Audouini Infection of Hair. H. M. Robinson Jr.—p. 991.
Prurigo of Hebra. A. T. Zavaleta and A. M. Mom.—p. 998.
Sites of Deposition of Silver in Argyria: Special Reference to Axillary Glands. D. Roersma and B. L. Baker.—p. 1009.
Familial Steatocystoma Multiplex: 12 Cases in Three Generations. R. A. Noojin and J. P. Reynolds.—p. 1013.
Tribromoethanol ("Avertin") in Treatment of Neurodermatoses. L. G. Beinhauer.—p. 1019.
Treatment of Early Syphilis with Sodium Penicillin: Preliminary Report with Comparison of Results with 4,800,000 Units, Administered in Seven and a Half Days, with Smaller Dosages. J. Q. Blackwood, V. Scott and E. G. Clark.—p. 1028.

Ammoniacal Silver Nitrate in Fungous Infections of Nails.—Nickerson and White show that the results of treatment of fungous infections of the nails or onchomycosis have been disappointing, although many medicaments and methods have been tried. While conducting experimental work on the physiologic aspects of pathogenic fungi, Nickerson conceived the idea that the problem might be solved by the use of a substance that was fungicidal and which also could penetrate keratin. Such a substance was found in ammoniacal silver nitrate. Penetration by the ammoniacal silver nitrate was demonstrated by roentgenograms of the nails and by histologic study. Patients with fungous infections, proved by scraping and by culture, were treated with weekly applications of an ammoniacal silver nitrate solution. No unfavorable reactions were noted. Nine of 16 patients have been cured. "Cure" is demonstrated by the growth of normal-appearing nail tissue and normal mycologic observations. The remaining 7 were definitely improved and, as of the date of writing, continued to receive treatment. Because of the highly unusual property of penetrating nail tissue, reaching the nail bed and thus exerting direct fungicidal action on the hitherto unapproachable fungi, ammoniacal silver nitrate appears to offer a better prospect for cure of these extremely stubborn conditions than any previous method of treatment.

Tocopherols (Vitamin E) in Lupus Erythematosus.—With the knowledge that the administration of tocopherols (vitamin E) had demonstrated an ability to regenerate collagenous tissue in a case of noduloulcerative granuloma with lipoidal deposits, indistinguishable from necrobiosis lipoidica diabeticorum, it seemed logical to Burgess and Pritchard that certain other entities which have been grouped as diseases affecting primarily collagenous ground substance should be investigated and treated in similar manner. Eleven of the cases of lupus erythematosus treated by the authors have been described in some detail, because of observations resulting from close and frequent clinical and histologic studies made during tocopherol therapy. Other patients, 25 in all, have been similarly treated, and the pattern of response to treatment was similar in that some favorable curative effects have been obtained. Superficial lesions clear up more quickly with this form of treatment. Deep infiltrative lesions require more intensive and prolonged treatment, and the results, while not so spectacular as in the superficial type of disease, are progressive.

Archives of Pathology, Chicago

45:563-680 (May) 1948

Quantitative Hypothermal Method for Production of Local Injury of Tissue. G. M. Hass and C. B. Taylor.—p. 563.
Testicular Tumors: I. Seminoma and Teratoma. R. E. Scully and A. R. Parham.—p. 581.
Varices, Congenital Syphilis, Tuberculosis and Secondary Tumors of Esophagus: Histologic Observations. J. F. Majeranowski.—p. 608.
Pulmonary Emboli Composed of Contents of Amniotic Fluid. E. R. Jennings and B. E. Stofer.—p. 616.
Mast Cells: Their Distribution in Various Human Tissues. J. Janes and J. R. McDonald.—p. 622.
Pancreatitis Accompanying Hepatic Disease in Dogs Fed High Fat, Low Protein Diet. S. Lindsay, C. Entenman and I. L. Chaikoff.—p. 635.
*Cholecystitis: Study of Intramural Deposits of Lipids in 23 Selected Cases. R. E. Weismann and J. R. McDonald.—p. 639.
Congenital Cysts of Lung: Report of Case with Successful Pneumonectomy. A. C. Webb.—p. 658.
*Craniolacunia: Report of 6 Cases, with Review of Literature. J. P. Wyatt and H. Goldenberg.—p. 667.

Intramural Deposits of Lipids in Cholecystitis.—Weismann and McDonald say that although less frequent in occurrence than cholesterosis, or "strawberry gallbladder," large intracellular deposits of lipoid materials are not uncommonly observed in the subserosal layers of diseased gallbladders. This study is concerned with a review of the clinical data and examination of the tissue removed at operation at the Mayo Clinic in 23 cases of inflammatory disease of the gallbladder. The presence of advanced complicated inflammatory lesions of the gallbladder in these 23 cases was not associated preoperatively with corresponding clinical evidence of a severe infection or a purulent intra-abdominal disorder. Furthermore, except for the 1 postoperative death, infection or sepsis did not complicate the recovery from the surgical procedures. The local lipid disturbances in the walls of the gallbladder were associated with active perforating purulent lesions, but there was not clinical evidence of significant bacterial activity. Obstruction of the cystic duct with resultant stasis or imprisonment of bile occurred in most, if not all, of these cases. In addition to many of the usual histopathologic changes seen in inflammation of the gallbladder, the 23 specimens revealed excessive deposits of lipids in either an intramural or a pericholecystic location. For the most part, the lipid deposits occurred in large mononuclear phagocytes or giant cells. The lipids were associated with three types of histopathologic pictures, namely, a xanthomatous granulomatous reaction, fat necrosis and intramural areas of dense cellular infiltration with necrosis and "abscess" formation. The histopathologic evidence is suggestive of a chemical origin of the cholecystitis and would explain the paucity or absence of clinical signs of infection or sepsis. Chemical determinations of lipid fractions of the tissues from 5 of the gallbladders indicated that the cholesterol and the cholesterol esters were increased. When fat necrosis predominated, there was an increase in the fatty acid fraction. When the other characteristic lipid lesions were seen, the fatty acid fraction was only slightly increased.

Craniolacunia.—According to Wyatt and Goldenberg craniolacunia is an abnormality affecting fetal skulls and is characterized by a variable netlike or arborizing pattern of bony ridges, which sharply delineate and separate small rounded depressions or defects on the inner surface of the bones of the cranial vault. Synonyms for this condition include "relief skull," "trabecular skull," "lacunar skull" and "cranial lacunous osteogenesis." Reviewing the earlier literature, the authors call attention to the frequent association of this condition with meningocele and with the Arnold-Chiari malformation. At the authors' hospital craniolacunia has been observed at necropsy in 6 of 62 stillborn and neonatal infants in one year, when a total of 2,757 deliveries took place. Four of the 6 infants found to have craniolacunia were stillborn. All of the 6 infants were girls. The diagnosis of craniolacunia is made either during life by roentgenographic studies or at necropsy by direct inspection, by transillumination or by use of postmortem roentgenography. The skull, on postmortem examination, may show widened sutures or fontanels and may feel plastic. The areas of rarefaction, the lacunas, give rise to an arborizing network of ridges. The presence of defects in brain and cord should evoke closer examination of the skull to demonstrate craniolacunia. The pathologic investigation of stillbirths and neonatal deaths tends to be cursory. Therefore, reports of the morbid anatomy of lacunar skull and associated anomalies are scanty. A more detailed necropsy study of this group may possibly reveal a greater incidence of neuroembryologic defects and shed further light on the histologic aspects and the causation.

Canadian Medical Association Journal, Montreal

59:403-504 (Nov.) 1948

*Dietary Factors and Hepatic Injury. E. A. Sellers.—p. 403.
Intravenous Ethyl Alcohol in Treatment of Status Asthmaticus in Children. H. L Bacal and S. Pedvis.—p. 410.
Two Fatal Cases of Botulism from Home-Bottled Asparagus. C. E. Dolman and Donna E. Kerr.—p. 412.
*Visceral Manifestations of Disseminated Lupus Erythematosus. V. O. Hertzman and D. S. Munroe.—p. 415.
Vascularization of Myocardial Capillary Bed by Arterialization of Cardiac Veins: Experimental Study. J. D. Stenstrom.—p. 420.
*Anuria Following Electroshock Therapy. K. F. Clute and G. W. FitzGerald.—p. 426.
Diuretic Effects of Estrogens in Last Four Months of Pregnancy. Elinor F. E. Black.—p. 431.
Hereditary, Familial and Acquired Ptosis of Late Onset. Roma Amyot. —p. 434.
Neohetramine and Thephorin: Two New Antihistaminic Drugs. T. H. Aaron and L. H. Criep.—p. 438.
Infectious Polyneuritis and Related Syndromes. L. D. Wilcox.—p. 441.
The Questionable Importance of Blood Changes in Coronary Occlusion. J. H. B. Hilton, W. M. Cameron, E. S. Mills and S. R. Townsend. —p. 447.
Studies in Progressive Lipodystrophy. H. Baxter, M. A. Entin and J. A. Drummond.—p. 452.
Treatment of Carcinoma of Cervix Uteri. A. M. Evans.—p. 458.
Pregnancy and Tuberculosis. S. Kobrinsky.—p. 462.
Cyclopropane in Cesarean Section. J. A. Brown.—p. 464.

Dietary Factors and Hepatic Injury.—Sellers reviews recent observations concerning the role of nutrition in the development of hepatic lesions. It is possible to produce cirrhosis by prolonged feeding of diets low in choline and in the substances from which it is synthesized. Moreover, dietary deficiency in sulfur-containing amino acids such as cystine and methionine is capable of producing massive lobar necrosis in rats. This is not a consistent result, and the relationship of methionine and cystine to the disease is not clear. At present their lack must be regarded as a contributory rather than a causal factor. A remarkable degree of repair may take place in experimental cirrhosis produced by carbon tetrachloride. Choline or its precursors are necessary in the repair process. There is no evidence that combinations of the lipotropic factors or increased total intake of these substances causes a greater degree of recovery than the presence of an adequate amount of a single lipotropic factor in an otherwise adequate diet.

Visceral Manifestations of Lupus Erythematosus.—Hertzman and Munroe point out that when the presenting lesion of lupus erythematosus is in the skin, the diagnosis is comparatively simple, but it should be remembered that the initial symptoms may be arthritis, fever, pleurisy or lymphadenopathy. Proved cases of this type are not frequent even in large general hospitals. The 11 cases reviewed in this report were seen in the course of three and one-half years at the Vancouver General Hospital. The youngest patient was 17, and the oldest 49 years old; 6 were in their twenties. The sex ratio is generally about 5 to 1 in favor of women. In this group of 11 cases there was only 1 male. The onset is usually insidious, and the course may be marked by remissions and exacerbations. The remissions may last months. In this group the average duration between onset of symptoms and death was twenty months. The shortest was five months; the longest was three and one-half years. The diagnosis of disseminated lupus erythematosus may be extremely difficult, especially before skin lesions are present. Joint pains are likely to be confused with rheumatic fever or rheumatoid arthritis. Patients presenting a fever of unknown origin and leukopenia bring many conditions into the differential diagnosis. These include tuberculosis, the typhoid group and undulant fever. Roentgenologic and laboratory examinations will exclude these. Subacute bacterial endocarditis will be considered, but blood cultures are sterile in disseminated lupus. Secondary syphilis may have to be excluded where generalized lymphadenopathy is associated with fever and a skin rash. A positive blood Kahn reaction adds to the difficulties. Differentiation will be based on the lack of exposure or primary lesion, and the low titer of the Kahn reaction. The urinary findings have to be differentiated from those of glomerulonephritis. The causation of disseminated lupus erythematosus remains obscure. Direct exposure to sunlight and the injection of allergenic substances such as tuberculin are to be avoided. Gold therapy is contraindicated. Once the disease is established therapy is purely symptomatic.

Anuria Following Electroshock Therapy.—Clute and FitzGerald report the case of a man, aged 59, who was subjected to electroshock therapy with a dose of 110 volts and 450 milliamperes for 0.3 second. The patient had a typical grand mal convulsion with no immediate complications. The following morning he stated that he had not passed any urine since the shock treatment and complained of aching in the lumbar region and nausea. Catheterization on March 3 disclosed only 1 ounce (30 cc.) of urine in the bladder. Various measures to stimulate urinary excretion were without avail, and the patient died of anuria. The authors observed close similarity of the renal lesions to those seen in the crush syndrome and in a number of other conditions. Cytologic changes in the renal tissue proved insignificant in contrast with the complete renal failure.

Connecticut State Medical Journal, Hartford

12:983-1054 (Nov.) 1948

Management of Acute Coronary Thrombosis and Its Complications. S. A. Levine.—p. 985.
Integration of Anesthesiology in Medicine. E. B. Touhy.—p. 989.
Padded Versus Skin-Tight Unna's Boot and Similar Types of Leg Bandages. E. J. Orbach.—p. 995.
Bilateral Cavernous Sinus Thrombophlebitis: Complete Recovery in Case with Multiple Systemic Complications. T. L. Bucky, W. J. Lahey and P. Kunkel.—p. 996.
World Medical Association Second Annual Assembly Geneva, Switzerland. C. Barker.—p. 999.

12:1055-1102 (Nov.) 1948. Supplement

Cancer Facilities in Connecticut. C. Barker.—p. 1055.
Cancer of Skin. J. Wolf.—p. 1057.
Cancer of Breast. L. S. McKittrick.—p. 1062.
Cancer of Oral Cavity. A. W. Oughterson.—p. 1066.
Laboratory and Other Procedures Useful in Diagnosis of Cancer. J. C. Leonard.—p. 1073.
Status of Cancer in Connecticut. J. R. Miller.—p. 1076.
Cancer of Prostate. W. F. Leadbetter.—p. 1079.
Cancer of Colon and Rectum. E. J. Ottenheimer.—p. 1086.
Cancer of Lung. G. E. Lindskog.—p. 1091.
America's Fight Against Cancer. C. S. Cameron.—p. 1096.

Geriatrics, Minneapolis

3:335-392 (Nov.-Dec.) 1948

*Unsuspected Syphilis in Older Persons. M. Thewlis and E. T. Gale.—p. 335.
*Hemoglobin Level in Old Age. T. H. Howell.—p. 346.
Twenty-Four Surgical and Fourteen Non-Surgical Cases. J. L. DeCourcy.—p. 353.
Anesthesia and Supportive Therapy for Operations on Elderly Patients with Special Reference to Reduction of Operative Risk. J. S. Lundy.—p. 361.
Senile Disorders of Gait, Including So-Called "Senile Paraplegia." M. Critchley.—p. 364.
Habits in Aging Heart Patients. L. F. Bishop.—p. 371.

Unsuspected Syphilis in Older Persons.—According to Thewlis and Gale unsuspected, unadmitted syphilis is rather common in old age. Syphilis should always be suspected in obscure illness. Tertiary syphilis may show up in persons infected thirty or forty years before. The first signs of hereditary syphilis may not appear until after the age of 50. The serologic and spinal fluid examinations may not yield any clue. Syphilis may cause symptoms suggesting almost any known disease. It may produce a background against which hereditary epilepsy shows up, causing cardiovascular symptoms. Multiple tests for syphilis are essential when diagnosing chronic illnesses. Many conditions may be caused by unsuspected syphilis. Among these are gallstones, peptic ulcer, appendicitis, bronchiectasis, epileptiform seizures, asthenia, hypertension, atrophic or hypertrophic arthritis, carcinoma, disease of the central nervous system, long continuous fever, endarteritis, diabetes and other diseases. Leg ulcers are commonly found. Serologic tests may be baffling. The spinal fluid Wassermann reaction may be positive while the gold curve and other tests remain negative in results. Older clinicians used potassium iodide internally and red mercuric iodide injections. This treatment often proved satisfactory. Penicillin in large doses (5,000,000 to 8,000,000 units in divided doses) may be given to an ambulatory patient. One must always be prepared for a Herxheimer reaction in these cases. It is safer to begin treatment with iodides, then bismuth compound, followed by penicillin. In treating syphilitic coronary artery insufficiency and syphilitic aortitis, iodides and bismuth compound are employed. A fever reaction within twenty-four hours after treatment may be disregarded. The patient must be kept under observation for the remainder of his life. Discovery of old syphilis and proper therapy may prolong life and save much suffering.

Hemoglobin Level in Old Age.—Howell says that whereas in the past many writers have stated that the level of hemoglobin in the blood of old persons is diminished, more recent authors have seen no alteration. The author presents studies on several groups of aged persons, which revealed that old persons are not anemic.

Journal of Neurophysiology, Springfield, Ill.

11:473-522 (Nov.) 1948. **Partial Index**

Metabolism of Brain Tissue Slices and Suspensions From Various Mammals. K. A. C. Elliott.—p. 473.
Respiration and Glycolysis of Focal Epileptogenic Human Brain Tissue. K. A. C. Elliott and W. Penfield.—p. 485.
Reticulo-Spinal Influences on Stretch Reflexes. J. M. Sprague, L. H. Schreiner, D. B. Lindsley and H. W. Magoun.—p. 501.
Excitation in Relation to Voltage Changes Along Nerve Surface. G. M. Schoepfle.—p. 509.

Journal of Neurosurgery, Springfield, Ill.

5:507-588 (Nov.) 1948

Neurosurgery Comes of Age. C. Pilcher.—p. 507.
*Technic of Prefrontal Lobotomy. J. L. Poppen.—p. 514.
Cell Stations in Upper Sympathetic Chain: Evidence that Functional Regeneration of Sympathetic Nerves in Man Occurs Only in Postganglionic Neurones. O. R. Hyndman, J. Wolkin and M. W. van Allen.—p. 521.
Precocious Puberty of Intracranial Origin. C. E. Troland and Carroll A. Brown.—p. 541.
Surgical Relief of Spasticity in Paraplegic Patients: II. Peripheral Nerve Section, Posterior Rhizotomy, and other Procedures. L. W. Freeman and R. F. Heimburger.—p. 556.
Radial-Median Anastomosis. F. Turnbull.—p. 562.

Technic of Prefrontal Lobotomy.—Poppen describes a technic of prefrontal lobotomy which he has used since 1943 in 470 patients. A surgical mortality of 1 per cent indicates its safety. The technic is simple and rapid, but most important is the fact that the white tissue is visualized as it is divided with the electrocoagulation suction unit. Two parallel incisions, usually 4 cm. in length, in a sagittal plane are made in line with the pupil of each eye, extending just to the anterior border of the coronal suture on each side. The scalp edges are retracted and a button of bone, 2.5 cm. in diameter, is removed by means of a special trephine. The dura is opened with a semicircular incision, with the pedicle toward the midline. A wedge of cortex is cleanly excised through each opening, thus exposing the white tissue. A ventricular needle is inserted in the direction of the edge of the lesser sphenoid wing in line with the anterior horn of the lateral ventricle. If the lateral ventricle is normal in size, the needle will just skirt the anterior edge of the anterior horn. In many of these patients, however, the ventricular system is enlarged and the needle may enter the ventricle. In such instances the needle is withdrawn and directed slightly more anteriorly; the point of the needle will contact the orbital plate. The needle track serves as a guide. It is followed with the electrosurgical suction instrument and the white tissue divided in a sweeping motion from side to side. This procedure is performed under direct vision, care being taken that all tiny bleeding points are controlled. All the white tissue is divided on the medial inferior quadrant to the lateral ventricle, and this is completed under direct vision with a lighted brain retractor. The white digitations in the gyri can readily be seen and divided. The incisions made through the white tissue are irrigated to remove bits of fragmented brain. The dura is closed. The bone buttons are replaced and the scalp sutured.

New Jersey Medical Society Journal, Trenton

45:519-568 (Nov.) 1948

Modified Electro-Shock Therapy and Rapid Treatment of Mental Illness. V. J. Riggs.—p. 521.
Clinical Experience with New Oxytocic. J. N. Pannullo.—p. 523.
Treatment of Colles' Fracture. B. L. Clement.—p. 524.
Selection of Anesthesia for Patient with Medical Complications. H. S. Ruth.—p. 527.
*Streptomycin in Type B Hemophilus Influenzae Meningitis. E. R. O'Brian, R. T. Shipman and C. P. DeFuccio.—p. 535.
Mechanics of Gastro-Intestinal Roentgenology. G. H. Stein and M. Kraemer.—p. 539.
Diagnostic Booby Traps. H. S. Read.—p. 546.
Hysterectomy: Survey of Two Thousand Operations. A. S. Harden.—p. 548.
Management of Surgical Emergencies in Newborn. B. M. Hogg.—p. 552.
Dietary Management of Diabetes Mellitus. Selma Weiss.—p. 554.

Streptomycin in Type B Hemophilus Influenzae Meningitis.—O'Brian and his associates record the results obtained in 9 consecutive cases of meningitis caused by type B Hemophilus influenzae treated with streptomycin at the Jersey City Medical Center. The intramuscular dose was 20 mg. per pound of body weight per day, divided into eight equal doses, administered every three hours. The intrathecal dose was 25 to 75 mg. daily, given as a single dose. The diluent was isotonic sodium chloride solution, usually 10 cc. Sulfadiazine was used in conjunction with the streptomycin in all cases. Although streptomycin alone has effected cures, the authors do not feel that sulfadiazine should be withheld from these patients. The dosage of sulfadiazine was 1 to 3 grains per pound (0.13 Gm. per kilogram) of body weight per day. The age range of the patients was from 7 months to 3 years, with 7 of the patients under 2 years of age. Eight of the 9 patients recovered. The authors conclude that a combination of streptomycin and sulfadiazine constitutes adequate therapy in the cases of mild and moderate meningitis due to type B Hemophilus influenzae. In cases of severe disease and in patients who do not respond to this therapy, type-specific rabbit serum should also be used.

Ohio State Medical Journal, Columbus

44:1073-1180 (Nov.) 1948

Coma. M. H. Fischer.—p. 1105.
Case of Amebic Lung Abscess Treated with Emetine. H. S. Applebaum and *J. S. Frankel.—p. 1110.*
Brown Modification of Wiltberger-Miller Pregnancy Test. A. L. Brown.—p. 1113.
Medicine and the Changing Order—Industrial Medicine. W. F. Ashe.—p. 1115.
Treatment of Selected Cases of Bone Sarcoma by Resection and Bone Transplantation. D. B. Phemister.—p. 1119.
Early Recognition and Treatment of the More Common Neurologic Diseases. I. M. Scheinker.—p. 1123.

Public Health Reports, Washington, D. C.

63:1439-1482 (Nov. 5) 1948

Hospital Beds for the Tuberculous. R. J. Anderson.—p. 1440.
Problem of Hospitalization of the Tuberculous. W. B. Tollen.—p. 1441.

63:1483-1506 (Nov. 12) 1948

Q Fever Studies in Southern California: IV. Occurrence of Coxiella burneti in Spinose Ear Tick, Otobius megnini. W. L. Jellison, E. J. Bell, R. J. Huebner and others.—p. 1483.
Industrial Sickness Absenteeism: Males and Females, 1947, and Males First and Second Quarters, 1948. W. M. Gafafer.—p. 1489.
A Knee Stanchion. F. J. Krueger.—p. 1498.

63:1507-1534 (Nov. 19) 1948

Chronic Illness and Socio-Economic Status. P. S. Lawrence.—p. 1507.
Leprosy: Factors in Public Health Management. G. W. McCoy. —p. 1522.

63:1535-1566 (Nov. 26) 1948

Airplane Application of DDT for Emergency Control of Common Flies in Urban Community. C. W. Kruse.—p. 1535.

Radiology, Syracuse, N. Y.

51:611-766 (Nov.) 1948

Hip Lesions of Infants and Children Seen at Newington Home and Hospital for Crippled Children. G. W. Heublein, L. Bernstein and B. J. Hubenet.—p. 611.
Radiologic Features of Neurofibromatosis. J. F. Holt and E. M. Wright. —p. 647.
*Sickle-Cell Anemia in Adults: Roentgenographic Findings. O. Legant and R. P. Ball.—p. 665.
Polyostotic Fibrous Dysplasia (Albright's Syndrome) and Its Comparison with Dyschondroplasia (Ollier's Disease): Correlation of Radiologic and Pathologic Findings. L. R. Sante, W. Bauer and R. M. O'Brien.—p. 676.
Occult Meningocele of Sacrum: Report of 3 Cases. V. W. Archer, G. Cooper Jr. and C. V. Cimmino.—p. 691.
*Radiologic Changes in Sickle-Cell Anemia. S. H. Macht and P. W. Roman.—p. 697.
Roentgen Therapy for Carcinoma of Larynx: Fifteen Years Experience. W. Harris, R. Kramer and S. M. Silverstone.—p. 708.
*Study of Hands of Radiologists. Nancy K. Braasch and Margaret J. Nickson.—p. 719.
35-mm. Unit for Cinefluorography. J. S. Watson Jr. and S. Weinberg. —p. 728.

Sickle Cell Anemia in Adults.—The purpose of this report by Legant and Ball is to describe the roentgenographic findings in 26 cases of sickle cell anemia in adults seen at the Presbyterian Hospital in New York since 1930. Particular attention is given to the appearance of the bones. The roentgenologic aspects reflect the long-standing anemia and the peculiar thrombotic tendency in this disease. The abnormality most frequently found was cardiac enlargement. The abnormalities of the bone observed in this group consisted of: (1) generalized osseous demineralization, 11 cases; (2) a biconcave deformity of the vertebral bodies which is believed to be the result of bone softening, 4 cases; (3) patchy cortical thickening of the long bones, 7 cases, which might be due to infarction, and (4) localized bone infarcts, 5 cases, not unlike those seen in caisson disease. Four of the 26 cases showed nothing abnormal on the roentgenograms. A unique case is reported in which a serial roentgenographic study was made of an infarction of two vertebral bodies from its inception to the healing stage.

Roentgenologic Changes in Sickle Cell Anemia.—Macht and Roman review 48 cases of proved sickle cell anemia indexed in the records of the Baltimore City Hospitals during the years 1936 through 1947. Twenty-nine of the patients were children under 14 years of age. All cases of sickle cell trait (sicklemia) without anemia were excluded from this series. The more common observations have been cardiac enlargement, skeletal disturbances involving the long bones and pneumonia. The roentgen manifestations of changes in bone have been noted to occur later than the clinical findings of heat, swelling and tenderness. These destructive bone changes are transitory and may be missed unless serial roentgen examinations are performed. Since sickle cell anemia is a systemic disease and may manifest itself in many ways, roentgenologic study should be correspondingly complete.

A Study of the Hands of Radiologists.—Braasch and Nickson say that during the annual meeting of the Radiologic Society of North America in 1946 a study of the hands of radiologists was undertaken. The incidence of abnormalities in the finger ridges among radiologists was 48 per cent as compared with 1.8 per cent of an unexposed group. The incidence of ridge abnormality increased with years of exposure to 100 per cent for those who had practiced more than thirty-five years. The use of lead gloves was not a routine practice in most cases. The incidence of ridge abnormality was 48 per cent among those who professed to use lead gloves. Photographing the nail fold area and examining these photographs for abnormalities of the terminal vessels, the superficial vascular plexus and the papillary border of the corium revealed about the same abnormalities as are seen in aged persons without exposure to radiation. The changes appear to be induced at an earlier age among radiologists than among unexposed persons.

Southern Medical Journal, Birmingham, Ala.

41:1061-1146 (Dec.) 1948

Health, Manpower and Universal Military Training. L. A. LeDoux. —p. 1061.
Traumatic Radiculitis in Low Back Pain: Multiprop Bone Graft for Fusion. A. T. Moore.—p. 1065.
Comparative Effects of Tetraethylammonium Chloride and Lumbar Sympathetic Block on Blood Flow in Lower Extremities in Peripheral Vascular Diseases: Report of Three Cases. W. J. Hollis, J. E. Holoubek and E. F. Chanton.—p. 1076.
*Rectal Lymphogranuloma. T. R. Adams, M. Edwards and R. E. Netterville.—p. 1080.
*Treatment of Bilateral Renal Diseases. A. E. Goldstein.—p. 1086.
Arteriosclerosis, The Great Killer. R. D. Baker.—p. 1089.
An Evaluation of Use of Beta Rays in Ophthalmology. J. I. Moore. —p. 1092.
Alternating Idiopathic Spontaneous Pneumothorax. J. W. Cooch.—p. 1094.
Ovarian Surgery in General Hospitals: Three-Year Comparison of Controlled and Uncontrolled Series of Patients. W. N. Jones and H. H. Thomas.—p. 1099.
Impacts of General Ethical and Social Trends upon Medical Care and upon Medical Education. E. Hull.—p. 1103.
Status of Anesthesia in Southern Medical Association Area: Report of Survey of 1,500 Hospitals. F. E. Woodson.—p. 1105.
*Use of Stilbestrol for Endometriosis: Preliminary Report. K. J. Karnaky. —p. 1109.
Gynecomastia Associated with Primary Liver Cell Carcinoma. M. H. Bernstein Jr.—p. 1111.
Is Diabetes a Problem of the South? R. E. Fox.—p. 1114.
Pregnancy in the Diabetic. D. M. Paton.—p. 1118.
Oral Aureomycin in Therapy of Streptomycin-Resistant Granuloma Inguinale. R. B. Greenblatt, R. B. Dienst, C. Chen and R. West. —p. 1121.

Rectal Lymphogranuloma.—Adams and his co-workers treated 62 patients, 60 women and 2 men between the ages of 20 and 55, with rectal lymphogranuloma with stricture formation, by complete excision of the diseased bowel. Forty patients showed only rectal involvement, 11 showed involvement into the sigmoid, 5 involvement from the anus up to the descending colon, 3 involvement as high as the splenic flexure and 3 showed involvement of the rectum and colon as far as the hepatic flexure. This extent of the lesions justifies the point of view that total excision of the involved tissues is the best way to treat these cases. The two stage abdominoperineal operation, as advocated by Lahey, was used in 23 cases. It has proved to be a satisfactory method and is still useful in the depleted patients. There were 14 one stage Miles abdominoperineal resections, which may be preferred to the Lahey operation except in the seriously ill patients. There were 5 deaths among the 62 patients undergoing resection, a mortality rate of 8.1 per cent. Fifty-seven patients survived; 9 of them were followed for less than two years, 23 for two to five years and 22 for more than five years. All are getting along satisfactorily, have gained weight from a few pounds to as many as 140, and are now able to carry on their usual occupations.

Bilateral Renal Disease.—According to Goldstein, a bilateral surgical renal disease is a frequent occurrence. Three hundred and eight of 7,500 urologic patients studied (16.3 per cent) had bilateral renal disease. One hundred and eighty-three of these patients were less than 40 years of age; therefore the importance of early recognition and early correction. Eighty-three were operated on. Some of them were operated two, three and as many as ten times. Both kidneys were operated on in 28 cases. Nephrectomies, nephrotomies, pyelolithotomies, renal suspensions and in several cases prostatectomies were performed on these patients to relieve them of their condition. Eleven patients were in extreme condition and died before any operation was performed. Only 4 patients died after their operation. The remaining 79 patients operated on lived from one to twenty-one years. Both conservative and radical surgery may be necessary.

Ten per cent and sometimes less of renal reserve seems to be sufficient to permit a patient to tolerate a renal operation. Operations should be done in stages in bilateral renal disease.

Diethylstilbestrol for Endometriosis.—Karnaky treated 37 women with endometriosis, 3 of them with endometriosis of the incision, 4 in the posterior fornix, 3 with pelvic endometriosis diagnosed by biopsy or laparotomy, and 27 diagnosed by detailed histories and thorough physical examination, by oral administration of uncoated tablets of diethylstilbestrol. The initial dosage was 0.5 mg. every night for three nights, and every fourth night the dosage was increased 1.0 mg., until 5.0 mg. was being taken. Five milligrams was given every night until the patient began to spot or bleed, and then 10 mg. was given every fifteen minutes until bleeding stopped. The nightly dose of 10 mg. was continued until the patient again spotted or bled and was then increased to 15 mg. and the next time to 20 mg. The purpose was to keep the patient amenorrheic. Diethylstilbestrol dosage had to be increased about every two or six weeks because after a patient has been taking a certain dose over a period of time she will begin to bleed again. By the increase in the dosage the patient is again made amenorrheic. A pelvic examination was made every seven to ten days in order to determine when the bound down endometrial masses and pelvic organs had become freely movable and to keep the patient under constant observation during the administration of these large doses of diethylstilbestrol. If the pelvic organs had become freely movable, the treatment was gradually discontinued. It usually requires three to six months for the desired results. Pentobarbital sodium rectal suppositories were used to control nausea at the beginning of the treatment. Endometriosis is not stimulated to grow by large continuous doses of diethylstilbestrol, but small doses of the drug may stimulate it. Endometrial implants of the incision and in the posterior cul-de-sac which were blue and which bled before diethylstilbestrol was given have not returned to the blue color nor have they bled after diethylstilbestrol had been discontinued for six, eight to twelve months. Five patients became pregnant after diethylstilbestrol was discontinued. This preliminary report suggests that diethylstilbestrol is no panacea for the treatment of endometriosis but might become a valuable adjunct in the treatment.

Surgery, Gynecology and Obstetrics, Chicago

87:641-758 (Dec.) 1948

- *Pattern of Vasospasm Following Acute Arterial and Venous Occlusions: Micro-Metric Study. H. Laufman, W. B. Martin and S. W. Tuell. —p. 641.
- Use of Moe Plate in Treatment of Intertrochanteric Fractures. T. A. Lamphier, A. W. Trott and J. H. Shortell.—p. 652.
- *Effects of Various Types of Sympathectomy upon Vasopressor Responses in Hypertensive Patients. R. W. Wilkins, J. W. Culbertson and R. H. Smithwick.—p. 661.
- Fecal Continence Following Resections of Various Portions of Rectum with Preservation of Anal Sphincters. E. A. Gaston.—p. 669.
- Radical Excision of Inguinal and Iliac Lymph Glands: Study Based Upon 450 Anatomical Dissections and Upon Supportive Clinical Observations. E. H. Daseler, B. J. Anson and A. F. Reimann. —p. 679.
- *Intra-Arterial Transfusion: Experimental and Clinical Considerations: R. L. Robertson, I. H. Trincher and E. W. Dennis.—p. 695.
- Urinary Tract Changes in Cervical Carcinoma. W. K. Diehl and J. M. Hundley Jr.—p. 705.
- Method of Repair for Common Type of Traumatic Incontinence of Anal Sphincter. W. Birnbaum—p. 716.
- Tuberculosis of Cervical Lymph Nodes: Present Surgical Status. C. W. Lester.—p. 719.
- Surgical Anatomy of Cystocele and Urethrocele with Special Reference to Pubocervical Fascia. B. H. Goff.—p. 725.
- Studies on Eck Fistulas in Dogs: Simple Technic for Preparation of Portacaval Anastomosis with Aid of Clamp. S. Freeman.—p. 735.
- Technic of Low Thigh Amputation. W. D. Holden.—p. 739.
- Blood Bank Organization. P. I. Hoxworth.—p. 744.

Vasospasm Following Acute Arterial and Venous Occlusions.—Laufman and his associates say that their interest in the problem of vasospasm following vascular occlusions arose while studying the response of mesenteric vessels to intestinal strangulations. They were impressed by the importance of residual vasospasm in the involved vasculature following release of the strangulations at operation. Such vasospasm apparently had a decisive influence on the recoverability of strangulated bowel. The study also showed that regardless of whether the strangulations were primarily venous or arterial, vasodilating measures were of great value in resuscitation. In 40 animals the superior mesenteric vein was clamped with a rubber-tipped artery forceps from twenty minutes to two hours and twenty-nine minutes. The pattern of behavior of the smaller radicals following venous mainstem occlusion can be summarized as a moderate dilatation of the veins and marked spasm of the arteries. After release of the occlusion, the vein soon returns to its normal caliber, while the artery persists in a state of residual vasospasm for varying periods of time. Capillary behavior following venous occlusion generally is one of dilatation, but certain areas are in spasm at the same time. The same technic as was used in the case of the vein was used for occlusion of the superior mesenteric artery in 21 dogs. In arterial occlusion there is an arterial and a venous spasm. After release of arterial occlusions, reactive hyperemia occurs, but during this state the precapillary artery remains in spasm. "Sludge" formation (Kniseley) is seen in the smaller vessels during both arterial and venous occlusions. Minute thrombi form easily in the spastic vein during arterial occlusion and may propagate, thus accounting for segmental venous thrombosis in arterial occlusive disease. This observation makes it unnecessary to postulate the presence of periarterial inflammation as a venous irritant in the production of venous thrombosis.

Various Types of Sympathectomy and Vasopressor Responses in Hypertension.—Wilkins and his co-workers investigated the effects of the surgical removal of various portions of the sympathetic nervous system on the vasopressor responses of patients to standard stimuli. The subjects were mainly hypertensive patients, selected for surgical sympathectomy. They were studied before and again approximately two weeks after the operations. Certain patients were studied at longer intervals. Measurements were made with the patients lying quietly on the tilting ballistocardiograph. Sympathetic nervous stimuli were applied, including tilting into the upright position, production of reactive hyperemia in the limbs, the Valsalva experiment, the cold test and mental arithmetic. With the sudden stopping of a blood-pressure-lowering procedure the presence of vasoconstriction could be demonstrated by the appearance of a brief hypertensive overshoot. The authors stress that overshoots of arterial pressure appearing quickly after the cessation of blood-pressure-lowering procedures furnish a means of grading the amount of sympathetic nervous vasopressor reactivity of human subjects. The grade of vasopressor reactivity of a subject is markedly decreased or abolished after extensive bilateral sympathectomy. It is less affected by less extensive sympathetic denervations. The grade of vasopressor reactivity is not necessarily related to the resting level of arterial pressure of a subject. The abolition of overshoots of arterial pressure in hypertensive patients appears highly desirable.

Intra-Arterial Transfusion.—Under a pressure greater than that of the mean arterial blood pressure an infusion will enter the arterial system. The increased pressure and flow will be conducted throughout the entire system, as far proximally as the aortic valves. There will be an immediate increase in arterial pressure and volume. Under the conditions of shock, in which there is lowered blood pressure, decreased blood volume and reduced tissue perfusion, an intra-arterial infusion will act to restore to normal levels all three deficiencies. The authors describe a method for the rapid administration of blood intra-arterially with experimental observations and report of its clinical application in 12 patients. Their results substantiated the premise on which earlier investigators worked; that is, an immediate and sustained response is effected, with rapid rise in blood pressure and restoration of blood volume. Administration of blood by this method is indicated primarily in the treatment of shock resulting from a rapid decrease in blood volume and which fails to respond adequately to conventional therapy. Other measures to combat shock or hemorrhage, such as the administration of stimulants, oxygen, intravenous infusion and transfusion, can be used simultaneously. Intra-arterial transfusion involves the sacrifice of an artery and is a procedure which should be reserved for extreme emergencies after conventional methods of therapy have failed. Active bleeding from a wound, peptic ulcer or traumatized organ is not in itself a contraindication for intra-arterial transfusion, provided there is a possibility of control of the hemorrhage.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Heart Journal, London

10:141-212 (July) 1948

*Pathogenesis of Left Bundle Branch Block. H. Rasmussen and T. Moe.—p. 141.
Erosion of Ribs in Coarctation of Aorta: Note on History of Pathognomonic Sign. W. Dock.—p. 148.
Coarctation of Aorta: Review of 23 Service Cases. M. Newman.—p. 150.
*The Right Precordial Lead. H. Vesell and B. Shorr.—p. 158.
Coronary Artery Aneurysm with Occlusion Due to Calcified Thrombus. N. Ashton and Mary Munro.—p. 165.
Heart Block in Osteitis Deformans. C. V. Harrison and B. Lennox.—p. 167.
Ventricular Complexes in Heart Block. H. B. Kay.—p. 177.
Regenerative Capacity of Mammalian Heart Muscle. E. W. Walls.—p. 188.
Incipient Symmetrical Peripheral Gangrene Complicating Paroxysmal Tachycardia. D. G. Abrahams.—p. 191.
Tuberculous Pericarditis. A. A. F. Peel.—p. 195.

Left Bundle Branch Block.—Rasmussen and Moe say that in the course of previous investigations relating to the electrocardiogram in hypertension and in aortic incompetence they reached the conclusion that the left bundle branch block cardiogram might be caused by gross enlargement of the left ventricle apart from any local lesion of the bundle branch. In the present investigation they have sought to test this hypothesis further by an analysis of the clinical, radiologic and necropsy findings in a series of 100 cases presenting permanent left bundle branch block in the cardiogram. It was found that diseases affecting the left ventricle, such as hypertension and aortic valvular disease, predominated in this material, occurring in 72 per cent of cases, and that a considerable degree of left ventricular enlargement occurred with about the same frequency. In 14 cases there were reasons for presuming the existence of local damage to the left branch of the bundle, of which the most important cause was probably cardiac infarction involving the ventricular septum. Investigation suggests that the left bundle branch block electrocardiogram is due to enlargement of the left heart five times as often as to a local lesion of the left branch of the bundle. The authors believe that the left ventricular hypertrophy curve and the left bundle branch block curve represent different degrees of retarded conduction to the left side of the heart and that, therefore, no sharp distinction between them is necessary. Both imply, in most but not in all cases, a considerable degree of left ventricular enlargement, and both are found in association with diseases that affect the left side of the heart.

Right Precordial Lead.—According to Vesell and Shorr recent studies in clinical electrocardiography have indicated the desirability of taking multiple precordial leads as a general routine practice. They review data on the right precordial lead CF_1 and describe the characteristics of this lead in 265 patients without heart disease. They review variations of the T wave, in particular, in CF_1 in relation to changes in position of the patient, electrical axis of QRS, presence of a prominent Q wave in lead 3 and in left ventricular strain. In 2 patients, CF_1 was taken before and after the occurrence of a posterior myocardial infarction and revealed the development of characteristic changes. These characteristic changes in CF_1 were found in each one of 35 cases of recent myocardial infarction of the posterior wall. The authors discuss the diagnostic value of lead CF_1 in infarction of the posterior wall and direct attention to the usefulness of this lead in (1) locating the side of bundle branch block, with CF_4 or CF_5: (2) evaluation of left ventricular enlargement, particularly from displacement by the diaphragm; (3) possibly of right ventricular enlargement, and (4) in posterior wall infarction. It has also been used for better recording of auricular activity and as an aid in the diagnosis of tricuspid insufficiency.

British Journal of Dermatology and Syphilis, London

60:359-398 (Nov.) 1948

Brazilian Pemphigus Foliaceus (Wild Fire). O. G. Costa.—p. 359.
Generalized Angiomatosis Simplex Cutis Following an Erythema Morbilliforme Probably Caused by Use of Pyribenzamine. M. Oppenheim and W. A. Yacullo.—p. 368.
Case of Unilateral Lentigines with Mental Deficiency. D. Cappon.—p. 371.
Cutaneous Hypersensitivity to Penicillin. B. Phillips.—p. 375.

British Journal of Ophthalmology, London

32: 793-856 (Nov.) 1948

Visual Purple and Photopic Luminosity Curve. H. J. A. Dartnall.—p. 793.
Scleral Resection in Treatment of Retinal Detachment (Preliminary Report). S. Philips.—p. 811.
Fatty Embolism of Retinal Artery Found in Eyes after Enucleation and Orbital Exenteration. A. Loewenstein and J. Foster.—p. 819.
Atrophia Gyrata Choroideae et Retinae. J. Saebø.—p. 824.
Intra-Ocular Phakomata—Report of 3 Cases. R. F. Lowe.—p. 847.

British Medical Journal, London

2:889-926 (Nov. 20) 1948

Physiologic Basis of Neuromuscular Disorders. H. Dale.—p. 889.
Flocculation Tests: Chemical and Clinical Significance. N. F. Maclagan.—p. 892.
*Conservative Treatment of Placenta Praevia. W. G. Mills.—p. 896.
*Diagnosis of Latent Tetany: with Observations on Effect of Calciferol. D. K. O'Donovan.—p. 900.
Pathogenic Staphylococci: Detection of alpha-Lysin Production on Rabbit and Sheep Blood-Agar Plates. W. A. Gillespie and P. M. Simpson.—p. 902.
Case of Dicoumarol Poisoning. J. A. W. Miller and J. K. Drucquer.—p. 904.

Conservative Treatment of Placenta Previa.—Mills points out that it has long been taught that expectant treatment of *placenta previa can never be countenanced.* This principle was based on the supposition that a patient with a placenta previa would frequently bleed to death in the absence of intervention. Evidence is accumulating to suggest that more tragedies are produced by overtreatment than by neglect. After reviewing the recent literature on the conservative treatment of placenta previa, the author presents observations on 100 cases of placenta previa treated largely along conservative lines; there were no maternal deaths, and the fetal and neonatal loss was 16.5 per cent, which compares favorably with other recently reported figures. The majority of fetal deaths would appear to have been avoidable. The number of cases of placenta previa in which it is possible to adopt conservative measures depends on the stage of pregnancy at which the patient is sent to hospital. If this is done after the first hemorrhage, and there has been no previous intervention, Macafee's experience shows that deferring of active treatment may be practicable in over 50 per cent of cases; but if, as is shown in this series, there has already been procrastination or examination before admission, then this number may be reduced to about 25 per cent. In conservative treatment the mother must either be confined to hospital or lead a restricted existence at home for a number of weeks, and she may sometimes be required to suffer further hemorrhage; on the other hand, there is little increased danger to life, and there is a slightly lower chance of the need for delivery by cesarean section. If cesarean section should eventually become necessary there is a much greater probability of a live baby. The advantages to the fetus of conservative delay greatly outweigh the risks, since maturity is the prime requisite for fetal survival. However, any serious hemorrhage may suddenly produce fetal asphyxia, and consequently delay of even a few hours is unjustifiable when the fetus has reached a satisfactory stage of development. Since conservative treatment has been adopted reports show for the first time a fetal and neonatal loss below 30 per cent. There is opportunity for the reduction of fetal mortality in placenta previa to about 10 per cent while the maternal mortality remains at its present minimal figure.

Calciferol in Latent Tetany.—O'Donovan calls attention to some pitfalls in the diagnosis of latent tetany. The 34 patients studied by him were adults and adolescents, almost all of whom had latent tetany. This seems important, since most previous reports dealt with children who had acute or transient tetany. Hypocalcemia served as an index in latent tetany. It was found that the well known tests are unreliable. The tourniquet test was negative in result in 34 per cent of 89 observations on 32 patients, and Chvostek's sign was negative in 73 per cent of observations. A new test combining the tourniquet test and hyperventilation is described. It is used when the results of the tourniquet test are negative, and is more reliable than either of the two procedures used separately. Of 58 observations on 32 patients 95 per cent were positive. Two other patients whose tourniquet test was negative in result were physically unable to hyperventilate. Calciferol has an inhibitory effect on the signs of latent tetany which is independent of the increase in serum calcium. In 22 of 27 observations on patients who had received a total of more than 500,000 units the signs of latent tetany were abolished, although the serum calcium was still less than 9 mg. per hundred cubic centimeters. Thus it seems that calciferol inhibits latent tetany in two ways, by raising the serum calcium and by some other effect. The doses required to inhibit the signs of latent tetany in the average case of hypoparathyroidism on ordinary diet is between 50,000 and 150,000 units daily. The dose necessary to keep the serum calcium within normal limits may be considerably larger. It seems more reasonable to base the therapeutic dosage on a biologic test than on a chemical estimation. The higher dosage necessary to keep the serum calcium around 10 mg. per hundred cubic centimeters not only may be unnecessary but may have a deleterious effect. It seems well established that the toxic manifestations of vitamin D are not necessarily accompanied by hypercalcemia. The patients considered here, whose dosage and treatment were based on the signs of latent tetany, have so far shown no ill effect of low blood calcium such as lens opacities. It is difficult to explain the inhibitory action of calciferol on latent tetany that is not due to increased serum calcium. A relative increase in ionized calcium is at least a theoretical possibility.

Journal of Neurol., Neurosurg. & Psychiatry, London

11:227-298 (Nov.) 1948

Intravenous Methylene Blue for Experimental Studies on Central Nervous System. W. H. Feindel, A. C. Allison and G. Weddell.—p. 227.
Neurovascular Relations and Anomalies at Base of Brain. S. Sunderland.—p. 243.
*Diabetes Insipidus Following Closed Head Injury. R. J. Porter and R. A. Miller.—p. 258.
Cerebral Thrombophlebitis and Fibrinogen B. G. Phillips.—p. 263.
*Epileptic Response to Peripheral Injury. G. Parsons-Smith.—p. 267.
Psychologic Effects in Depressive Patients of Marihuana Homologue Synhexyl. D. A. Pond.—p. 271.
Cystic Pituitary Adenomata. J. E. Paterson.—p. 280.
Case Report: Abnormal Innervation of the Sphincter Pupillae and Ciliary Muscle Following Third-Nerve Regeneration. W. R. Russell and M. H. Wright.—p. 288.
Case of Cerebral Amebic Abscess Treated by Modern Chemotherapy. E. A. Turner.—p. 291.

Diabetes Insipidus After Head Injury.—Porter and Miller say that of all persons with nonfatal closed head injuries admitted to the Military Hospital for Head Injuries, Oxford, during the years 1940 to 1945, who numbered about 5,000, 13 suffered from diabetes insipidus. In addition to these 13 patients, the records of 5 others treated elsewhere are reviewed. In 15 of the 18 cases in which the site of injury could be determined, it was frontal or occipital. The symptoms were usually first noticed during the second or third week after injury. All patients treated responded to pituitrin. Spontaneous recovery took place in the majority, in 11 within nine months. Associated injury to the olfactory nerves and optic chiasm is common; other hypothalamic syndromes are rare. The mechanism of the injury is discussed, and it is suggested that a traction lesion of the pituitary stalk would best explain most cases.

Epileptic Response to Peripheral Injury.—Parsons-Smith says that a study of the literature reveals that in certain cases of reflex epilepsy there is an association between the epileptic response and peripheral injury. The author presents a man, aged 41, who in 1940 had had an attack of "spinal meningitis," from which he had recovered without sequelae and after which he had remained well for seven years. In January 1947 the man accidentally crushed his left hand beneath a 200 pound (90.7 Kg.) cable drum. This produced a cut on the dorsum of the left hand and was deep enough for him to be able to see his tendons. He noticed shortly afterwards that the whole of the thumb, the dorsum of the index finger and outer half of the middle finger seemed numb; this numbness was due to local damage to the terminal cutaneous branch of the radial nerve. It was about twenty-four hours later that, while sorting some papers, he noticed that these seemed to tickle his left thumb and index finger in a curious way. This was followed suddenly by stiffening of the thumb and first two fingers. The thumb was adducted into the palm, then the fingers flexed at the metacarpophalangeal joints. Within a second or two the arm began a series of jerking movements, the elbow became flexed and the arm rose to a position of abduction at the shoulder. The fit lasted for about half a minute, but recurred two or three times a day for the next week. Owing to the position of abduction which the arm assumed, he became self conscious, and tried by gripping his knee with his hand to restrain the limb. When he did this, the embarrassing abduction could be avoided. About ten days after the injury he was sorting some requisition slips when he suddenly appreciated that the curious tickling sensation produced by the papers on his left hand was spreading up his left arm. He gripped his knee tightly, but the feeling continued to spread, his jaw became clenched and he felt that his face was twisted. This was followed by a steam-engine-like noise in his head and he lost consciousness. He recovered in about twenty minutes, felt confused, and found that he had bitten his tongue. Medication with phenobarbital suppressed further attacks, but about eleven months after the accident when he was screwing up some newspaper with which to light a fire, he produced the aura in the left thumb and first finger. He swore loudly, gripped the fender as hard as he could, and thus aborted the attack. He had another minor focal seizure that afternoon. That night he played cards with friends. He was dealing the cards with his right hand and at the same time was pushing the cards forward from the pack, which he held in his left hand, on to the lateral side of his index finger. This produced the usual aura which on this occasion proceeded to a major fit. Since then the dosage of phenobarbital has been increased to 1 grain (60 mg.) three times a day and there has been no recurrence of fits.

Medical Press, London

220:463-484 (Dec. 1) 1948

Responsibilities During Anesthesia. E. V. Slaughter.—p. 470.
*Pain in Left Chest: Some Considerations in General Practice. A. Schott.—p. 474.
After-Treatment of Peptic Ulcer. G. D. Laing.—p. 479.

Pain in the Left Side of the Chest.—Schott points out that in many cases of pain in the left chest, the first point to decide is whether or not the symptom is of cardiac origin and, in particular, if it is anginal in nature. The symptom of angina is not necessarily indicative of structural disease of the coronary arteries. It is true that the great majority of such patients have some form of structural coronary disease—i.e., coronary sclerosis or syphilitic narrowing of the coronary orifices—but it should be borne in mind that angina may be produced by myocardial ischemia without structural coronary disease. Thus it may occur during attacks of paroxysmal tachycardia, owing to the altered mechanism of blood flow through the coronary bed, in advanced anemia or severe blood loss, and in certain extracardiac diseases. The author suggests that the simulation of coronary thrombosis by pulmonary embolism is probably due to a pulmonary reflex, resulting in coronary vasoconstriction via the vagus, superimposed on sudden strain of the right ventricle. In chronic disease of the gallbladder not only is the chest pain of the same character and distribution as the anginal pain due to structural coronary disease, but there is also evidence that the heart action is affected by the diseased gallbldader by way of reflex. Another abdominal condition which may give rise to anginal pain most probably by way of reflex is diaphragmatic hernia. Among the extracardiac conditions giving rise to pain the left side of the chest, those arising from the spine form an important group. Osteoarthritis of the cervical portion of the spine may closely simulate pain of cardiac origin. Occasionally lateral protrusion of the ruptured intervertebral disk between the sixth and seventh cervical vertebrae, with compression of the nerve roots, may produce pain in the chest which, if the lesion is left sided, may be mistaken for anginal pain, and if it occurs suddenly and is severe, for coronary thrombosis. Pain referred from the upper dorsal vertebrae as the result of impairment of alinement in a costovertebral joint may also simulate anginal pain. Several case histories are presented to illustrate the simulation of anginal pains by the aforementioned conditions. The author says that this is only a small selection of the great variety of conditions which may be mistaken for angina pectoris even by experienced physicians.

Acta Paediatrica, Stockholm

35:189-280 (No. 3) 1948. Partial Index

Granulocytopenia in Children. L. Salomonsen.—p. 189.
Choline in Plasma in Children, with Study of Induced Choline Deficiency. G. Brante and L. Söderhjelm.—p. 207.
Antistreptolysin Titer in School Children. G. Tunevall.—p. 218.
Initial Loss in Weight of Prematurely Born Infants and Their Weight During First Two Years of Life. K. L. Möller.—p. 236.
*Two Cases of Congenital Malformations after Exposure to Measles in Early Pregnancy of Already Immune Mothers. A. Hagströmer. —p. 242.
Congenital Varices of Esophagus. S. Jorup.—p. 247.

Congenital Malformations After Exposure to Measles in Early Pregnancy.—Hagströmer presents the histories of 2 infants with congenital malformation. One had a hare lip and partial cleft palate and the other had cleavage of the back palate, a rudimentary right ear placed a good distance forward on the cheek and a notably small chin. Both families had been free from such defects, but a brother of the first infant had had measles during the second month of the mother's pregnancy that resulted in the birth of the defective child. In the case of the second infant, 2 cases of measles had occurred in the family while the mother was in the second month of pregnancy. In both cases the pregnant women had remained free from measles, having had attacks during their childhood. Whether or not a causal relationship existed between the siblings' measles and the malformations described cannot be definitely decided.

Deutsche medizinische Wochenschrift, Stuttgart

73:501-540 (Nov. 5) 1948. Partial Index

Hemoglobin Metabolism. K. Bingold and W. Stich.—p. 501.
Reduction of Bilirubin in Gallbladder and Intestine. F. Eisenreich. —p. 506.
*Symptomatology and Treatment of Respiratory Disturbances in Poliomyelitis. R. Aschenbrenner and A. Dönhardt.—p. 508.
Endemic Malaria in Germany and Anophilism in Post War Period. L. Fischer.—p. 515.
*Problem of Endocarditis Lenta: Clinical, Pathologic, Bacteriologic and Therapeutic Contribution (Continued). A. Walter, Gertrud Reimold and L. Heilmeyer.—p. 518.

73:541-580 (Nov. 19) 1948. Partial Index

Hyperbilirubinemia with Exclusively Indirect Diazo Reaction and Reduced Resistance of Erythrocytes After Hepatic Disorders. E. Hiller.—p. 546.
Destructive Albumin Metabolism as Basis of Lipophil Dystrophy. H. W. Bansi.—p. 548.
Latent Tuberculosis of Palate and Tonsils. W. Kindler.—p. 554.
Paratyphoid C Fever (Type Kunzendorf). F. Thedering.—p. 558.
Paroxysmal Nocturnal Hemoglobinuria of Marchiafava Type. G. Damm and M. Ratschow.—p. 562.
*Problem of Endocarditis Lenta: Clinical, Pathologic, Bacteriologic and Therapeutic Contribution (Concluded). A. Walter, Gertrud Reimold and L. Heilmeyer.—p. 565.

Respiratory Disturbances in Poliomyelitis.—Aschenbrenner and Dönhardt report 228 patients with poliomyelitis; of these, 31 with severe respiratory disturbances were admitted to the Altona Hospital during the poliomyelitis epidemic in Hamburg in 1947. Only 6 of the 31 patients were less than 15 years of age, while 25 were between the ages of 16 and 42. The mortality rate of the entire group of 228 patients was 11.8 per cent. Nineteen of the 31 patients died before the initiation of the treatment in the iron lung. All of them presented the spinal type with mechanically conditioned hypoventilation. The remaining 12 patients were placed in the iron lung; 7 of them died during the first week. Treatment in the iron lung came too late for 3 of these patients who had already been moribund, while the other 4 had severe combined bulbospinal respiratory disturbances with pneumonia. Four patients recovered and could be discharged from the hospital with fairly adequate respiration. One of the fatal cases was that of a girl, aged 15; death from acute heart failure occurred suddenly on the sixty-sixth day of the disease after three bouts of pneumonia had been controlled with penicillin. Careful control of the heart and early treatment with strophanthin may be of decisive importance. Temporary, reversible paralysis of respiratory muscles is the chief indication for treatment in the iron lung.

Endocarditis Lenta.—Walter and his co-workers report 50 patients, 33 men and 17 women, with sepsis lenta, 48 of whom had endocarditis lenta and 2 cholangitis lenta. The majority of the patients were between the ages of 20 and 30. The clinical diagnosis was established bacteriologically in 26. History revealed that years ago 26 had attacks of articular rheumatism, with involvement of cardiac valves in 20. Thirty-four died, 10 recovered and 6 are still under treatment. Of 16 patients with symptomatic treatment 15 died, while 3 of 12 patients recovered who were given combined treatment with penicillin and supronal,® a new proprietary sulfonamide preparation consisting of a mixture of methylsulfapyrimidine and 4-aminomethylbenzenesulfonamide salt of sulfathiourea, known as dema.® The total dose of penicillin in these 3 cases was 1,000,000 to 5,000,000 units and that of supronal® was up to 300 Gm. These doses are considered small. Six of 18 patients recovered who were given combined treatment with adequate doses. Prolonged continuous treatment for three to four weeks is recommended. A standard scheme cannot be given. Not only the blood level but the tissue level of the drugs is important. The initial dose of supronal® was 4 Gm., with 10 to 12 Gm. per day and later with 8 Gm. per day in order to maintain the desired blood level. Sodium bicarbonate should be administered simultaneously, and that applies also to the rectal administration, which should be practiced if the drug is not tolerated by mouth. Repeated determination of the resistance of the causative agents to penicillin and supronal® is required, since too low a dosage may be responsible for a considerably increased resistance to the drugs. The combined treatment causes shifting of the alternate play between virulence and resistance to the disadvantage of the virulence. Temperature, blood sedimentation rate, enlargement of the spleen, bacteriemia, microhematuria and blood picture were restored to normal in 10 patients, 3 of whom were followed up for more than one year, 4 more than six months and 3 for less than six months. A recurrence cannot be excluded definitely, but prognosis may be considered favorable in the absence of any clinical manifestation for more than one month after discontinuation of the treatment.

Medicina, Buenos Aires

8:271-350 (Aug.) 1948. Partial Index

*Quantitative Determination of Hypophysial Gonadotropin in Urine. Use in Diagnosis of Amenorrhea. F. A. de la Balze and J. Argonz. —p. 303.
*Chronic Cor Pulmonale With and Without Cardiac Insufficiency: Respiratory and Circulatory Function. A. C. Taquini and B. B. Lozada. —p. 325.

Gonadotropin in Urine.—De la Balze and Argonz performed quantitative determinations of gonadotropic hormone in the urine in 83 nonselected patients with amenorrhea. The Zondeck method, as modified by Heller and Heller, was used. Increased elimination of the hormone in the urine suggests amenorrhea due to ovarian estrogenic dysfunction or to greatly diminished ovarian estrogenic function, whereas diminished elimination suggests amenorrhea from gonadotropic hypophysial dysfunction or from greatly diminished hypophysial function. Amenorrhea in the presence of a normal urinary elimination of the gonadotropic hormone may be due to: (1) lack of response of the endometrium to normal gonadotropic hypophysial and estrogenic ovarian stimulation, (2) a moderate degree of either hypophysial or ovarian dysfunction and (3) either psychogenic or organic hypothalamic involvement. Amenorrhea of predominantly estrogenic ovarian origin is the most frequent. It includes cases of physiologic, early spontaneous and artificial menopause and those of patients with rudimentary ovaries. That of predominantly gonadotropic hypophysial origin includes cases of hypophysial myxedema, nonacromegalic tumors with destruction of the hypophysis, nervous anorexia with poor nutrition, acromegaly and primary thyroid myxedema. Amenorrhea of neither a predominantly ovarian nor a hypophysial origin includes cases of uterine, psychogenic hypothalamic and acromegalic origin, as well as those of patients with vaginal agenesis or with certain forms of neurosis, hyperthyroidism and hypertension with symptoms simulating menopause. The aforementioned method is of use for the diagnosis of different types of gonadal insufficiency, the state of the gonadotropic pituitary function and the physiopathologic diagnosis of amenorrhea.

Chronic Cor Pulmonale.—Taquini and Lozada determined the respiratory and circulatory functions in 54 patients with clinical symptoms of cor pulmonale with or without cardiac insufficiency. For comparison observations were also made on two control groups of 7 patients with asthma without cardiac or pulmonary disease and in 40 patients with heart disease and with normal lungs. The authors found that in patients with chronic cor pulmonale without bronchial spasm the pulmonary ventilation is normal in presence of cardiac sufficiency and increased in presence of cardiac insufficiency. In presence of chronic cor pulmonale with bronchial spasm there are dyspnea and hyperventilation of pulmonary origin, which prevents differentiation of cardiac sufficiency. However, in these cases, cardiac sufficiency can be determined after administration of bronchodilating drugs. The vital capacity was found to be reduced in all the cases. This reduction was accentuated by cardiac failure. The ratio of vital capacity to total capacity, reduced by the pulmonary disease, showed no significant difference when it was studied in cor pulmonale with cardiac failure. The venous pressure was normal in most of the cases of purely respiratory disease. In some cases it was increased, reaching 210 mm. in 1 case. In patients with cardiac failure, the venous pressure was always high. As a rule, figures higher than 200 mm. are only found in patients with cardiac failure. The arm to tongue circulation time was a less valuable aid, since frequently it was found increased in the absence of cardiac failure.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

92:3377-3484 (Oct. 23) 1948. **Partial Index**

*Results of Vitamin D_2 Treatment in 111 Patients with Noncavernous, Open Pulmonary Tuberculosis. C. Dijkstra.—p. 3385.
Spontaneous Hemopneumothorax. A. S. Groen and E. G. Godfried. —p. 3393.
Retrobulbar Neuritis in Focal Infections. J. A. G. ten Berg.—p. 3398.

Vitamin D_2 in Pulmonary Tuberculosis.—In view of the fact that vitamin D_2 produced favorable effects in patients with tuberculosis of the skin and mucous membranes, Dijkstra tried this medication in noncavernous open pulmonary tuberculosis. The patients were given one tablet containing 30,000 units three times daily for eight to ten months. In some of these patients bronchoscopy disclosed mucosal changes in the form of ulcerations, granulations, caseation and tubercles, while in others the mucosa was merely red and swollen. In many of the patients the sputum had been positive for nearly two years; in others, for a shorter period. Many of the patients had been treated unsuccessfully for more than a year by other methods. In 111 of the patients the sputum became negative in three to six months after the start of the D_2 medication and the mucosal changes in the bronchi disappeared. An average of seven and one-half months have elapsed since the sputum became negative.

Nordisk Medicin, Stockholm

40:1805-1856 (Oct. 8) 1948. **Partial Index**

Electroencephalogram in Some Cases of Meningoencephalitis. E. B. Holmgren.—p. 1810.
*Paralysis Generalis. After-Examination. G. Knudsen.—p. 1812.
Gelatin- and Polyethylene Film as Dura Substitute and Polyethylene Plates as Bone Substitute in Cranial Defects. E. Busch, J. Bing and E. Hart Hansen.—p. 1814.
Sympathectomy in Sciatica. T. Räsanen.—p. 1817.
*Results of Prefrontal Leukotomy. C. L. Knudsen.—p. 1821.
Postoperative Nerve Lesion. A. Radløv.—p. 1829.

Dementia Paralytica: After-Examination.—In 82 of the 110 cases of dementia paralytica treated in Lier Hospital from 1926 to 1947, in 85 men and 25 women, aged from 14 to 69, malaria treatment was used, with 2 deaths following the treatment. The malaria treatment was followed by antisyphilitic treatment. Penicillin was not used. Fifty patients were discharged. Of these 15 are dead, the fate of 3 is unknown, 7, though not self supporting, have some work capacity, in 13 the progression of the disease has apparently been halted but there is a stationary psychosis, and 12, treated within three months of the onset of the disease, are psychically normal and have resumed their former occupations. Knudsen says that the results of the treatment depend primarily on early diagnosis and stresses that early diagnosis can be made only by examination of the spinal fluid. The defects present at the start of the treatment can hardly be repaired to any noteworthy degree, although they may be somewhat ameliorated. It may be difficult to determine the extent of the process. Some years after the terminated antisyphilitic treatment examination of the spinal fluid is advised for all syphilitic persons, and on the slightest sign of pathologically changed spinal fluid treatment should be begun at once, as if paralysis were present.

Results of Prefrontal Leukotomy.—Knudsen says that to date 87 prefrontal leukotomies have been performed in Norway, in patients aged from 23 to 69. The indications were psychoses with unfavorable prognosis and, as a rule, of long duration, in which spontaneous remissions could not be expected and which were resistant to other treatment. The duration of the disease was from one to thirty-seven years. There were 15 postoperative deaths. Cerebral hemorrhage during the first weeks after operation, the most frequent complication, caused death in 9 cases; in 2 cases death was due to meningoencephalitis; in 3, to bronchopneumonia, and in 1, to miliary spread of pulmonary tuberculosis. Postoperative complications were epileptic seizures, in 7 cases, and impaired sphincter control with urinary and fecal incontinence, in some instances lasting for months. A by-effect observed in a number of cases but not mentioned in literature was decided tenderness of the skin of the face of unknown cause. The final result of the operation is not evident before two years and depends not only on the operation but on active and suitable after-treatment. Thirty-five patients (10 hebephrenic and catatonic schizophrenics, 11 paranoid patients, 10 patients with depressive conditions and 4 with constitutional psychopathic inferiority) were discharged as more or less able to work without needing public care, 22 patients were considerably improved though still hospitalized, 13 were more easily cared for, and 2, unchanged. In addition to the high mortality risk the change in the patient—greater indolence, reduced productivity, narrowed interests—must be considered. Still prefrontal leukotomy offers many advantages so that until improved and less hazardous methods are developed the procedure will be justified in carefully selected cases.

Praxis, Bern

37:887-906 (Dec. 2) 1948

Malignant Tumors of Kidneys: Forty Cases of Surgical Clinic of University of Basel (1926-1946). H. Nigst.—p. 887.
*Pathogenesis and Treatment of Neurovegetative Disturbances in Parkinson's Disease. E. Frommel.—p. 891.
Early Diagnosis of Progressive Paralysis and Its Difficulties. S. Stocker. —p. 893.
Irgafen (Sulfanilamide Derivative) in Infections of Urinary Passages. W. Bachmann.—p. 898.

Neurovegetative Disturbances in Parkinson's Disease.—According to Frommel, patients with Parkinson's disease present basal lesions, and their disturbances of salivation, of muscular rigidity and of mimics are related to the diencephalon. All symptoms of the patients whose diencephalic relays are directly or indirectly affected, are the result of disturbances of the cholinergic and the adrenergic regulation. The symptoms of Parkinson's disease are externalized by a vagotonic prevalence. This parasympathicotonia may be favorably influenced by belladonna, the point of attack of which is more peripheral than central. Parkinson's disease, however, reacts better and more rapidly to two new drugs, parpanit® (diethylaminoethyl-1-phenylcyclopentane-1-carboxylate hydrochloride) and the R. P. 2987 (diethylaminoethyl-N-thiodiphenylamine), which are anticholinergic, antiadrenergic and antihistaminic. They act on the mediators of the neurovegetative stimulation. Everything suggests that their effect is a central one on the relays themselves of the cholinergy. Parkinson's disease therefore may be considered as a disorder due to lesions of the mediators of the stimulation of the autonomous nervous system and of the reactions of their respective enzymes.

Presse Médicale, Paris

56:813-824 (Nov. 20) 1948

Roentgen Therapy in Treatment of Asthma (Results on 800 Cases Followed Up). P. Vallery-Radot and P. Blamoutier.—p. 813.
Recent British Inquiry on Pneumoconiosis Caused by Coal Dust. A. Policard.—p. 814.
*Extradural Cyst Following Tearing of Root of Brachial Plexus. C. Gros and R. Cazaban.—p. 815.

Extradural Cyst Following Tearing of Root of Brachial Plexus.—Gros and Cazaban report the case of a man, aged 42, who was sent to their service on account of flaccid paralysis of the right arm. About a month before, he had had an automobile accident. The paralysis of the right arm had been evident immediately after the accident. Now he complained of severe pain of the causalgic type. Examination revealed trophic disturbances, flaccid paralysis and anesthesia of the right arm. A stellectomy was done on the right side, but the pains recurred although they were now less frequent. Later the patient was subjected to a right-sided hemilaminectomy on the seventh, sixth, fifth and fourth cervical vertebrae. An extradural cyst was discovered which reached from the first dorsal to the third cervical. Since this operation did not relieve the pain, the patient demanded amputation of his arm. The author believes that tearing of the brachial plexus may produce an arachnoidal breach, which is followed by an extradural collection of cerebrospinal fluid. This collection sometimes results in an isolated cyst of the subarachnoid space. This is comparable to complications that may follow an intradural surgical approach either on the medulla or its roots, several examples of which have recently been reported in the American literature. A knowledge of these post-traumatic cysts may elucidate the pathogenesis of certain remote sequels of surgical operations on the medulla or its roots.

Revista Médica Peruana, Lima

21:613-650 (Oct.) 1948. Partial Index

*Neurobartonellosis: Case. P. S. Peralta.—p. 641.

Neurobartonellosis.—The subject of this report is a girl 15 years of age with the gravest type of neurobartonellosis. The disease began with fever and an eruption. Fever was followed by rapidly progressive anemia, fronto-occipital headache, general muscular pain, pain in the bones, unilateral disesthesia, tremor of lips, blurring of vision, dizziness, increased tendon reflexes, acute epigastric pain, nausea, vomiting and dyspnea. The blood contained 60 per cent of parasitic cells. Treatment consisted of intramuscular injections of penicillin in daily doses varying between 200,000 and 600,000 Oxford units, up to a total dose of 5,000,000 units in twenty-two days. Penicillin caused disappearance of Bartonella organisms from the blood, controlled anemia, favorably changed the course, duration and acuteness of the disease and controlled all of the clinical and nervous symptoms of the disease.

Rivista di Clinica Pediatrica, Florence

46:487-556 (Aug.) 1948. Partial Index

*Choline in Treatment of Toxicosis in Infants. A. Gentili and W. Tangheroni.—p. 487.
*Local Streptomycin Therapy in Tuberculous Pleurisy. L. Nassi.—p. 509.
New Diagnostic Test (Index of Diffusion) in Local Streptomycin Therapy in Tuberculous Meningitis. A. M. Comparetti, G. Pasquinucci and Annalena Zoli.—p. 539.

Choline in Toxicosis of Infants.—Gentili and Tangheroni believe that toxicosis from functional insufficiency of liver is the most important factor in gastroenteritis of infants. They report favorable results from administration of choline hydrochloride in 25 cases. The drug was given twice daily by intramuscular injection. A 2 per cent choline hydrochloride solution was used in fractional doses of 2 cc., up to a daily dose of 4 cc. for four, six or ten consecutive days. The drug was well tolerated. Recovery was obtained in 20 patients. The drug acted by improving the antitoxic function of the liver, by controlling vomiting and dehydration and by causing prompt regression of all clinical symptoms. The 5 patients who received no benefit from the treatment were seen late in the course of the disease.

Local Streptomycin Therapy in Tuberculous Pleurisy.—Nassi reports good results in 24 children with clinical diagnosis of the disease which was confirmed by the Mantoux test, positive cultures and biologic tests of the pleural liquid for tubercle bacilli. The treatment consisted of thoracocentesis and injection of the drug. Thoracocentesis should be liberal and in some cases repeated. The dose of streptomycin injected locally varied between 200 and 300 mg. Insufflation of air into the pleural cavity is advisable for prevention of adhesions. Calcium and vitamins A and D_2 in large doses should be given in the course of streptomycin therapy.

Schweizerische medizinische Wochenschrift, Basel

78:1077-1096 (Nov. 6) 1948. Partial Index

*Histoplasmosis. Contribution to Etiologic Differentiation of Pulmonary Calcifications. F. Koller and H. Kuhn.—p. 1077.
Surgical Aspects of Bang's Disease. W. Birrer.—p. 1080.
Contribution to Treatment of Ulcer of Stomach and of Duodenum in Early and Late Cases. Second Report. H. Neumann.—p. 1085.
Is There Any Familial Disposition to Poliomyelitis? H. Czickely.—p. 1092.

Histoplasmosis.—Koller and Kuhn performed cutaneous tests of sensitivity to histoplasmin at the Medical University Clinic in Zurich on 180 adult patients whose chest roentgenograms showed calcifications of the lungs or of the hili. Only 2 of the 180 patients reacted to the intracutaneous injection of 0.1 cc. of a freshly prepared 1 : 100 dilution of the culture filtrate of the mycelium form of Histoplasma capsulatum. One of the patients with a positive reaction, a man aged 68, had lived in the Middle West of the United States for seven years; the other, a man aged 28, was born in Java and had lived there for twenty-five years. The same cutaneous tests were performed in a series of 555 Swiss army recruits. None of the recruits reacted to histoplasmin. These results did not provide any proof of the occurrence of histoplasmosis in Switzerland. It is likely that the 2 clinical patients with pulmonary calcifications and with positive reactions to histoplasmin had become infected outside of Europe.

Strasbourg Médical

108:299-312 (Oct. 5) 1948

*Morgagni's Syndrome. Effects of Irradiation Treatment of Pituitary Gland. J. Warter, A. Fitzenkam and J. M. Rouillard.—p. 299.
Hereditary Thrombopathies. S. Wiener.—p. 302.

Morgagni's Syndrome.—Warter and his associates report 1 case of Morgagni's syndrome in a woman aged 56. The patient presented a moderate obesity of the abdominal wall, but no signs of virilism. There was a pronounced asthenia, anorexia, severe attacks of vertigo, daily headache and insomnia. Her short moments of sleep were disturbed by nightmares. Vestibular hypoexcitability was demonstrated on Bárány's test. Definite frontal hyperostosis was revealed on roentgenologic examination; there was calcification of the dural fold separating the cerebral hemispheres, and considerable thickening of the cranial wall. There was definite retrostellate calcification with pronounced osteophytes. Treatment consisted of two series of irradiation of the pituitary region, with 2,000 r. The vertigo disappeared completely at rest. Headache was attenuated and did not occur daily. Asthenia was less profound and the patient was less depressed. Sleep remained light but was no longer disturbed by nightmares. Appetite was improved. The patient in general was benefited by the treatment.

Zeitschrift für Kreislaufforschung, Frankfurt

37:553-616 (Oct.) 1948. Partial Index

*Behavior of PQ Time in Bundle Branch Block Curves. A. Moll.—p. 553.
*Relation Between Hemoglobin Content and High Altitude Tolerance. W. Blasius.—p. 581.
Clinical and Pathologic-Anatomic Observations in Absence of Left Coronary Artery. H. Reindell and H. Harnasch.—p. 595.

P-Q Time in Bundle Branch Block Curves.—In analyzing a considerable number of records made in the course of bundle branch block, Moll found that bundle branch block of the left side often concurs with prolonged P-Q time, whereas in bundle branch block on the right side this is almost never observed. This behavior of the P-Q time is of value in the differential diagnosis. It can probably be explained by the peculiar vascular supply of the stimulus conduction system. The right coronary artery supplies the left bundle branch as well as the auriculoventricular system, and, if this artery is diseased, the electrocardiogram will reveal bundle branch block as well as prolongation of P-Q time. Deviations from this behavior are discussed.

Hemoglobin Content and High Altitude Tolerance.—Blasius investigated whether a direct relationship exists between increase in hemoglobin content and improvement in tolerance for high altitude. His experiments were made on men not accustomed to high altitude and on aviators who had had high altitude training. He detected a definite relationship between hemoglobin content and tolerance for high altitude.

Book Notices

New and Nonofficial Remedies 1948 Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on June 15, 1948. Issued Under the Direction and Supervision of the Council on Pharmacy and Chemistry of the American Medical Association. Cloth. Price, $3. Pp. 800 . J. B. Lippincott Co., Philadelphia 5, 1948.

In a recent discussion some pointed criticism was made concerning the title of this book. It was contended that by the time a therapeutic agent is included in the book it is not strictly "new"; that, with the increasing frequency of pharmacopeial revisions the agent, if it carries out its original promise, will soon become "official," and that the drugs included are not "remedies" in the sense that they will cure a disease or, in themselves, restore health.

Granting the cogency of these points, it may also be pointed out that over the years the title, "New and Nonofficial Remedies," has come to represent or connote to the physician, for whom it is primarily intended, a source of needed information, weighed and sifted by representative and competent authorities, concerning the most valuable or promising agents of his current armamentarium. In view of this and of the difficulty of replacing or modifying well known and accepted designations, it would appear that only officious pedantry would dictate a change in the title.

An entirely new feature of the present volume is the section on the relation of the Council on Pharmacy and Chemistry to other bodies concerned with drug products and advertising. These include: The Food and Drug Administration, The Federal Trade Commission, The United States Public Health Service, The United States Treasury Department, The Post Office Department, The United States Pharmacopoeial Convention and The American Pharmaceutical Association. A brief but informative and valuable discussion of each of these agencies is given.

Some thirty-two new monographs appear, representing agents that have been accepted by the Council since the 1947 edition of the book. One notes many additions to the list of new generic designations recognized by the Council for products which have been accepted as marketed under protected names; critical examination reveals the care with which the various chapters and subclassified sections have been revised. The chapters on local anti-infectives and systemic anti-infectives are noteworthy in this regard, apparently by reason of the acceptance of a number of new preparations in these categories. A section on surface anti-infectives is new. A section on protein and amino acid preparations has been added to the chapter on "Agents Used in Metabolic Disorders."

An up to date medical library would not be complete without a copy of this valuable compendium.

Chemistry in Nursing. By Raymond E. Neal, Associate Professor of Chemistry, Simmons College, Boston. Cloth. Price, $4. Pp. 564, with 27 illustrations. McGraw-Hill Book Co. Inc., 330 W. 42nd St., New York 18, 1948.

Seldom does one see a textbook in general chemistry as well written and as easy for the student and instructor to use as this one which aims to include "the inorganic and organic chemistry that the student nurse will need as a foundation for her further studies and professional practice." It avoids being "a bare outline of the essential facts" without giving more material than can be covered in sixteen weeks (thirty-two lectures and sets of lecture demonstrations and fifty-three laboratory experiments). "Teaching aids" include lecture outlines, directions for demonstrations, lists of materials required for the student experiments, directions for removing common stains and a comprehensive list of films (and their sources) that may be used in an elementary course. The reviewer objects to the fact that the laboratory experiments are not in a separate manual but are at the end of each unit on pages numbered consecutively with the text, so that when they are torn out to hand in to the instructor the book is mutilated. It should be emphasized that the author's experience seems to have been with students capable of college grade work: Although the text is easy to use, it requires serious, intelligent study.

Comment naissent les hommes: La reproduction, les âges de la vie. Par J. P. Bouckaert, professeur à l'Université de Louvain, Louvain. Paper. Pp. 305, with illustrations. Desclée de Brouwer & C^ie^, Quai au Bois 22, Bruges, Belgium, 1948.

This is an unusual and interesting account of the many phases of human reproduction, based on a series of lectures given at the University of Louvain. Bouckaert approaches the subject from a broad point of view, in which he tries to combine the data of physiology with the findings of social statisticians, to provide the basis for a biologically correct ethical approach to sexuality, marriage, control of conception, etc. The physiologic data are derived mostly from the literature on human beings, and supplemented with the more abundant material based on animal experimentation.

The first half of the book is concerned with the primary and secondary sex characters, sex determination, the sex instinct, rhythmicity and human sex behavior. Then follows a chapter on conception, the fetus, the physiology of pregnancy, of labor and of lactation. In chapter 4, called the "Aim of Reproduction," Bouckaert discusses the causes of fertility and sterility, conception control, birth rates, population statistics and the ethical implications of the subject. The final portion of the book considers some aspects of growth, adolescence, maturity and old age.

The book is well written and beautifully illustrated. The author gives evidence of a sound knowledge of the modern literature. However, his deductions in the field of ethics, especially the control of conception, are labored and open to wide disagreement. Biology is here made to fit and justify one particular system of ethics to the exclusion of other points of view.

The Rh Blood Groups and Their Clinical Effects. By P. L. Mollison, A. E. Mourant and R. R. Race. Medical Research Council Memorandum No. 19. Paper. Price, 1s.6d. Pp. 74, with 3 illustrations. His Majesty's Stationery Office, York House, Kingsway, London, W.C. 2, 1948.

The discovery of the Rh factor in 1940 by Landsteiner and Wiener was followed in rapid succession by its application to blood transfusions by Wiener and Peters (1940) and to fetal erythroblastosis (now called preferably hemolytic disease of the newborn) by Levine (1941) who had already described, in 1939, an atypical hemagglutinin which he attributed to transplacental immunization of the mother by fetal antigen. British contributions began to appear in 1943, and since then investigators in both countries have shared in the progress. The three co-authors have been the leaders in the field of Rh investigation in Great Britain. The monograph is divided in three parts. Race, who has added so much to the knowledge of genetics of the various Rh types, wrote the first chapter on classification. The lucid presentation of the British nomenclature of Fisher-Race will interest those who are trying to make up their minds about the respective merits of the two systems (the one mentioned here and Wiener's).

The second chapter, on clinical considerations, was written by Mollison. The obstetrician, the pediatrician and the clinical pathologist will be those mainly interested in discussions on such topics as interpretation of Rh antibodies in pregnancy, differential diagnosis of hemolytic disease of the fetus and newborn, premature termination of pregnancy, treatment, replacement transfusion, etc.

The final chapter on Rh testing, by Mourant, is of special interest to the clinical pathologist. All essential information on technic is given in a clear and concise manner.

The monograph is a fine example of good writing. It can be recommended as an excellent guide to all interested in the expanding field of Rh and its ramifications.

Ophthalmology in the War Years. Volume II (1944-June, 1946). Edited by Meyer Wiener, M.D., Professor of Clinical Ophthalmology, Washington University School of Medicine, St. Louis. Cloth. Price, $16. Pp. 977. Year Book Publishers, Inc., 304 S. Dearborn St., Chicago 4, 1948.

This volume contains a review of ophthalmic literature published during the war years 1944 to June 1946, and continues the project to review ophthalmic literature published during the war. Volume I covered the years 1939 through 1943. An attempt has been made to include everything of importance published during the war, including case reports of unusual interest. An editorial staff of thirty-seven specialists aided in the collecting and abstracting of all available articles and books pertinent to the field. A review of the literature is presented under thirty-seven subject headings beginning with anatomy and embryology and including chapters on fundamental and clinical subjects. Articles which are not discussed in the reviews are listed in the bibliographies, which are as complete as could be secured. The reader will find some articles which were published before 1944 but which were not available at the time the first volume came from the press. The book is of value not only to those who did not find the time to read all of the available literature during the war years but also to those who were unable to obtain it and to those who wish to delve quickly into the recent literature or who wish to have a resume of advances in all branches of ophthalmology during the period of the war.

Bacterial and Mycotic Infections of Man. Edited by René J. Dubos, Ph.D. [Aided by a grant from the National Foundation for Infantile Paralysis, Inc.] Cloth. Price, $5. Pp. 785, with 101 illustrations. J. B. Lippincott Co., 227-231 S. 6th St., Philadelphia 5, 1948.

This volume is a companion volume to "Viral and Rickettsial Infections of Man" edited by Dr. Rivers. Like the companion volume it has received generous financial support from the National Foundation for Infantile Paralysis, which makes possible its low selling price. Thirty-four authors have contributed the thirty-seven chapters in the book.

The facts and the problems concerning host-parasite relationship to infectious disease are stressed, even though in some instances the relationship is potential or remote. The arrangement of the order in which the various pathogenic agents are described does not follow an exact pattern because of the diversity of the infectious processes. For example, in the case of the diphtheria bacillus the concept of toxemia and of antitoxic immunity is stressed. The pneumococcus infections are chosen to emphasize the problems of antibacterial immunity, whereas the streptococci demonstrate multiple pathogenic potentialities. The book lacks continuity, which is inevitable with so many authors. Furthermore, some of the chapters reflect the research interests of the authors rather than a broad coverage of the subject.

The printing and illustrations are excellent and the book can be highly recommended to medical students, graduate students in bacteriology and physicians.

A Way to Natural Childbirth: A Manual for Physiotherapists and Parents-to-Be. By Helen Heardman. Cloth. Price, $2.50. Pp. 124, with 66 illustrations. Williams & Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2, 1948.

There has been an increasing awareness of the role of education in normal childbirth. Grantley Dick Read has influenced an increasing number of obstetricians to take an interest in the preparation of the patient for natural labor by special exercises, demonstrations and education. Mrs. Heardman, a trained physical therapist, instructs the women during their pregnancies in the art of relaxation, using a series of skilfully designed exercises. She explains away the fears of their forthcoming labors by familiarizing them with the various events that will take place.

This small manual describes and illustrates the various exercises. It concludes with some data concerning the decreased incidence of analgesia, operative delivery and complications in the group of women properly instructed in comparison with a normal control group. These tables and figures are not convincing. Letters from patients are equally unimpressive. Dr. F. J. Browne has written a short foreword to this volume. Although the book was written as a manual for physical therapists and parents to be, it can be read with profit by physicians.

The W. H. Ross Foundation (Scotland) for the Study of Prevention of Blindness. Paper. Price, 3s. Pp. 236. University of London Press, Ltd., Little Paul's House, Warwick Square, London, E.C. 4, 1948.

Mr. William Henry Ross of Davidson's Mains, Scotland, became totally blind at the age of 69. As a result of his personal tragedy, he became keenly interested in the study of the causes of blindness and its prevention. In 1935 he established the foundation bearing his name, but it was not until several years later, particularly during the war, that it began to function. The present report consists of a series of scientific papers, reprints of work published elsewhere by the authors, subsequent to 1935. It also includes an interesting history of the foundation and a summary of its valuable activities in the past thirteen years. It is good to have all of these contributions under one roof, so to speak.

Since Edinburgh is the center of a large coal mining area, and eye injuries are a common cause of blindness and loss of working time, it was natural that the early work of the members of the foundation should be concerned with the prevention of industrial accidents and the treatment of these injuries. Perhaps the most frequent injuries that are encountered are those of the cornea. Infection was prevalent and hypopyon ulcer was present in over half of the cases studied, 66.8 per cent in coal miners. Research work at Edinburgh University on behalf of the Ross Foundation, under the supervision of the late Professor A. J. Clark, showed that sodium sulfacetamide was efficacious in the treatment of these ulcers. With this investigation as a basis Robson, Scott and other workers experimentally and clinically studied the effects of this drug on various other types of corneal ulcers and showed beyond question that this substance is highly efficient. As a result of this work, the British armed forces, and later ours, became interested, and sodium sulfacetimide, under the name of albucid®, became widely used in the field. It is fitting, therefore, that seventeen of the twenty-one papers that are collected in the volume should deal with the bacteriology and the treatment of corneal ulcers. Among the others, there is a fine paper on the statistical analysis of the causes of blindness in Scotland by the foundation's director, R. M. Dickson, and a study of ocular siderosis by Loewenstein and Foster, reprinted from the *American Journal of Ophthalmology*. The report should appeal to those who are interested in industrial ophthalmology and ocular injuries.

Oral Vaccines and Immunization by Other Unusual Routes. By David Thomson, O.B.E., M.B., Ch.B., Director of the Pickett-Thomson Research Laboratory, London, and Robert Thomson, M.B., Ch.B., Pathologist, St. Paul's Hospital, London. Assisted by James Todd Morrison, M.D., D.P.H. Cloth. Price, $11. Pp. 329, with 5 illustrations. Published for the Pickett-Thomson Research Laboratory, Highwood Hill, London, N.W.7, by the Williams and Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2, 1948.

This book reviews the literature regarding the experimental and clinical aspects of immunization by way of the mouth, rectum, respiratory tract, skin, vagina and other areas. As stated in the preface, the book was completed in 1936 but because of several misfortunes was not published. Although the literature for 1936 to 1947 was added by Mr. Morrison, it is not as thorough as previous to 1936. Of some thousand references, only 3 per cent are after 1936. Almost 100 pages are devoted to oral vaccination with BCG. The next in order of space allowed were typhoid and bacillary dysentery, vaccination against common colds (using the common organisms found in the nose and throat but not viruses). Of historical interest, oral vaccinations have been tried against smallpox, pneumonia, measles, septic wounds, hay fever, poison ivy, tetanus, snake venom, etc.

The sum of this review is that experimentally in animals and man there is probably no doubt that a certain amount of absorption of antigen does take place by way of the gastrointestinal tract, as well as the other avenues mentioned. But the regularity and degree of absorption and the state of the antigen after absorption are not consistent or reliable. For example, in BCG by mouth, such heroic doses as 200 mg. in children two months to fourteen years of age gave a positive tuberculin reaction after one year in 68.5 per cent of cases. This reactivity decreased progressively. In some 1417 newborn infants vaccinated with BCG by the multiple puncture, parenteral method, some 99.7 per cent reacted to tuberculin after four to five weeks, and 90 per cent remained positive after four to four and one half years. In children and young adults after use of this method, 90 per cent will have positive reactions to tuberculin in two weeks. The authors fail to mention this method and give too few results of other methods in comparing the values of the relative methods. From both the experimental and the clinical standpoint, BCG vaccination by the parenteral route is decidedly more effective in the rapidity of development and the degree and duration of immunity than the oral route. The efficiency of parenteral vaccination against typhoid, pneumonia, smallpox and dysentery is likewise much greater by the parenteral than by the oral route.

Although a certain degree of immunity can be achieved by oral route, the rapidity of the development of immunity and degree of immunity is decidedly in favor of the parenteral route. As to the ease of administration, ostensibly the oral route has an advantage but, since multiple doses are required for vaccination by the oral route and only single doses can be effective for parenteral vaccination, from a public health standpoint the parenteral route is the one of choice. The Pickett-Thomson Research Laboratory is a commercial biologic laboratory interested in oral vaccines.

Microbes Militant: A Challenge to Man: The Story of Modern Preventive Medicine and Control of Infectious Diseases. By Frederick Eberson, Ph.D., M.D., F.A.A.A.S., Assistant Chief, Laboratory Service, Veterans Administration Medical Teaching Group, Kennedy Hospital, Memphis, Tennessee. A Revision of "The Microbe's Challenge." Second edition. Cloth. Price, $4.50. Pp. 401, with illustrations. Ronald Press Co., 15 E. 26th St., New York 10, 1948.

An excellent job of orientation for the general public has been done in this volume, one of the Humanizing Science Series. The book, representing a revision of an earlier publication, "The Microbe's Challenge," tells the story of preventive medicine from its earliest days, when Koch, Pasteur, Lister and other pioneers fought what must have seemed at times a hopeless battle to break away from ignorant beliefs and superstitions, down to development of modern concepts and practices.

Difficult as it is to come to a full stop or make any final statements regarding preventive measures in the rapidly shifting battleground of medicine today, Eberson almost without exception has given an accurate report on advances by science. The possible future is portrayed conservatively but with full appreciation of the many difficulties still remaining. As he states in his conclusion, "And now we are again at the Gate of Resistance opened by Louis Pasteur when he started out on his first journey." The thought behind that statement is not one of futility, but rather that our battle with microbes is never ending.

The review is done in an easy, intimate style that makes its reading a pleasure. Unusual words are always defined graphically when first used, and an excellent glossary provides additional assistance along those lines.

Also adding greatly to value of the book for those who may be interested in historical aspects of medicine is a special index of authors and personages and an extensive compilation of volumes suggested for additional reading. Twenty-six illustrations, many of them of great historical interest, are contained in the book.

Thought-provoking aspects of modern medicine are highlighted in many of the thirteen chapters, among which may be mentioned the ones on "Virus Riddles," "Epidemics to Order" and the final chapter, "The Challenge."

Undoubtedly the volume will help greatly to promote better understanding by the public of what a difficult course physicians must follow in their never ending war with death's battalions. Physicians themselves will find it valuable in helping them to put into understandable language what they may be called on to discuss in appearances before lay audiences.

Vitaminas y Sangre. Por el Dr. Gustavo Pittaluga, Catedrático de la Facultad de medicina de la Universidad de Madrid. Biblioteca del médico práctico, Volumen XXV. Fabrikoid. Pp. 746. Cultural, S.A., Habana, Cuba, 1948.

This is an extensive review of the literature on the relation of vitamins to the physicochemical and morphologic composition of the blood in health and disease. A chapter is devoted to the methods of determining the amount and kind of vitamins in the blood and in the urine. Data are given on the effects of vitamins on nutrition, on the growth of the body and hemopoietic tissues, and the effects on disease and physiologic states. The literature is covered fairly well, and the author cites his own experimental observations. This is the most complete account of the subject available and the book is a valuable reference work for data on vitamins in general.

Fractures and Dislocations for Practitioners. By Edwin O. Geckeler, M.D. Fourth edition. Cloth. Price, $5. Pp. 371, with 344 illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

In preparing this edition and bringing the book up to date new and approved methods have been added. Emphasis has been placed on fundamentals for the student, and only the most practical methods have been selected for guidance of the practitioner. The author continues to recommend one method which he considers the simplest and most reliable for the best functional result.

The purpose of this book is to condense the subject of fractures and dislocations. Such a book is intended to fulfil the need for a simplified guide to the management of bone and joint injuries.

On account of the increasing frequency and severity of highway accidents physicians should be well informed as to the management of injuries. The immediate treatment should be in accordance with accepted present day methods. A satisfactory result for the greater part depends on the intelligent use of general principles.

Although much improvement has been accomplished by the use of certain standardized procedures for fractures, the importance of individualization should be kept in mind and the form of treatment chosen only after a complete examination of the patient.

A small proportion of fractures requires open reduction, and for this reason description of operative technic has been limited to skeletal traction and subcutaneous leverage.

The use of plaster of paris is recommended, and plaster technic is explained in detail, as this is a form of immobilization which can be used universally. Careful follow-up treatment is as important as the reduction of a fracture.

A practical consideration of the subject will be of distinct advantage to the undergraduate in supplementing the course of didactic lectures, and the same arrangement will be of value to physicians in general practice.

Conditioned Reflexes and Neuron Organization. By Jerzy Konorski, Head of the Department of Neurophysiology in the Nencki Institute of Experimental Biology and Professor in the University of Lodz. Translated from the Polish Ms., under the Author's Supervision by Stephen Garry. Cambridge Biological Studies. General Editor: C. H. Waddington. Cloth. Price, $4. Pp. 267, with 18 illustrations. The Macmillan Company, 60 Fifth Ave., New York 11; Cambridge University Press, Bentley House, 200 Euston Road, London, N.W. 1, 1948.

This is the most recent publication on neurophysiology and is excellent. The author worked for many years under the guidance of Pavlov in Leningrad. He has attempted to extend the Sherrington conception of the functioning of the nervous system to the field of higher nervous activity. This was done on the basis of enormous experimental material collected by the Pavlov school. Konorski believes that the doctrine of Pavlov is not entirely correct and has accepted the Sherrington principle of neuron excitation with a few reservations. The author has assumed that the elaboration of a conditioned reflex consists in the formation of new functional connections in the brain. Further, he states that if a combination of excitations which results in aplastic change is not repeated a greater or lesser regression of this change occurs (atrophy of the synaptic connections. Further, he assumes that internal inhibition consists in the formation of new synaptic connections of an inhibitory character, independently of the already existing excitatory synaptic connections. The author hopes that his work will do something to abridge the gulf between the Sherringtonian and Pavlovian concepts. This book is for the neurophysiologist primarily but the reviewer feels that it should be in the hands of all neurologists.

The Literature on Streptomycin 1944-1948. By Selman A. Waksman. Cloth. Pp. 112. Rutgers University Press, New Brunswick, N. J., 1948.

This small book is merely a bibliography, without abstracts or comment, of the published papers on streptomycin from the date of its discovery until late 1948. The references are arranged in approximate chronologic order and there is an author and subject index. Included in the book is a reprinting of the paper which appeared in the *Proceedings of The Society for Experimental Biology and Medicine* in 1944 announcing the isolation of streptomycin. This book will have usefulness only to those working in the field of antibiotics.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

TREATMENT OF ALCOHOLIC MENTAL DISORDERS

To the Editor:—A 42 year old white collar worker, a known alcoholic addict, suddenly became extremely agitated and wildly violent. Seventy-two hours after the onset of this acute excitement, while under restraint, the patient suddenly died.

Assuming that the physical and neurologic status was essentially negative just prior to this sudden death, following shortly after a violent struggle, what might have been the probable cause of death? What is the accepted and recognized treatment of a known alcoholic addict who suddenly becomes psychotic, and who are the authorities?

Leon Freedom, M.D., Baltimore.

ANSWER.—Brains of patients who have died from acute alcoholism reveal acute edema of the brain substance. Chronic alcoholic addicts are more likely to have subdural hemorrhage associated with vitamin C deficiency or from trauma (Alexander, L.: *Quart. J. Stud. on Alcohol* 2: 260-262, 1941).

The symptoms enumerated in this query are insufficient to classify the type of alcoholic psychosis. The history, of course, suggests delirium tremens. The diagnosis for this condition would have strengthened by further observations of evidence of visual hallucinations and tremor. However, it must be remembered that delirium tremens usually develops in alcoholic addicts who have had acute infections or trauma, and that uncomplicated delirium tremens probably is never fatal when cardiac factors are taken care of (Bowman, K. M., and Jellinek, E. M.: *Quart. J. Stud. on Alcohol,* 2: 312-390, 1941).

Korsakoff's psychosis is characterized by anterograde amnesia, confabulation, usually polyneuropathy, associated with nutritional deficiencies but may be ushered in with delirium tremens. Mortality rates of from 25 to 50 per cent have been reported but these figures should have a favorable revision when vitamin therapy is used.

The history in this case does not justify a diagnosis of alcoholic hallucinosis. This type of psychosis is probably schizophrenia in an introverted alcoholic addict. The mortality is low.

The treatment of alcoholic mental disorders is given on pages 350 to 356 in the cited article by Bowman and Jellinek. They cite the methods and results of treatment used by forty-six authors. The principles of treatment are summarized as follows:

1. Withdraw alcohol abruptly.
2. Give sedative medication judiciously, paraldehyde preferred, and morphine condemned.
3. Omit restraints unless absolutely necessary.
4. Give carbohydrates in large quantities.
5. Administer sodium chloride in an attempt to combat dehydration and to restore normal acid base equilibrium.
6. Provide a high calory, high vitamin diet.
7. Force fluids.
8. Do lumbar punctures for diagnostic purposes only.
9. Treat complicating and precipitating factors with specific therapy.
10. Give psychotherapy according to the needs of the patient.

Probably the most satisfactory additional treatment is the use of dextrose with insulin (Vassaf, E. G., and Hall, V. R., Jr.: Tonic Effect of Insulin in Acute Alcoholism, *Arch. Neurol. & Psychiat.* 58: 94-97 [July] 1941. Thimann, J., and Peltason, P.: *Quart. J. Stud. on Alcohol* 7: 506-517, 1947).

PARTIAL PRIAPISM

To the Editor:—Please discuss treatment of partial priapism in a 30 year old man; penis is maintained in a constant semierect position. At intercourse penis assumes a more erect position but still is below normal. Prostatic examination and laboratory findings are negative. Symptoms began four months ago after a moderately severe blow in the perineal area.

M.D., California.

ANSWER.—This condition may well be a partial priapism due to thrombosis of one or both corpora cavernosa following trauma to the perineum. This would account for the constant semierection and also the incomplete erection of the penis during intercourse.

If pain is associated and the priapism progressive early surgical incision of the involved corpora and evacuation of clotted blood and thrombi is indicated. However, the elapsed time of more than four months probably contraindicates this treatment in this specific case, since the thrombosis does not appear to be progressive and organization of the thrombosis occurring at the time of trauma surely would be nearly complete by this time.

CIRCULATION TIME TEST

To the Editor:—Of what value is the rapid intravenous injection of calcium gluconate in determining the efficiency of circulation in a moribund 41 year old man? In this patient congestive heart failure developed after rheumatic fever in childhood. He had a cor bovinum. Three months prior to this test he had complete decompensation with some edema, enlargement of the liver and moisture in the lungs. He was treated by mercurial diuresis, six weeks' hospitalization, and careful digitalization. He recovered, but a second break in compensation occurred three months later. The test was performed at 6 p. m. Twelve hours later he died. It is my opinion that substances like calcium gluconate if administered rapidly would cause a speed shock. This patient had a fibrillating pulse of 130 at the time the test was done. It took thirty seconds to produce a hot flash and a tingling of the upper lip. Is there any justification for this test in a patient in such a precarious condition? Is the test of material value? Is it safe to inject calcium gluconate at the same speed as oxophenarsine hydrochloride?

Hyman J. Schorr, M.D., Chicago.

ANSWER.—Measurement of the circulation time is often a valuable aid in the differentiation of heart failure from such conditions as bronchial asthma, emphysema, hepatic enlargement or edema of other pathogenesis. In the case cited measurement of the circulation time would probably be of little practical value, for the clinical picture unequivocally bespeaks heart failure.

There appears to be no obvious reason for connecting the injection with the death that occurred twelve hours later. Calcium gluconate may be injected at the same speed as oxophenarsine hydrochloride. It should not be injected intravenously into a digitalized patient because of the danger of synergistic action.

INTRAUTERINE RADIATION

To the Editor:—Is it true that the Friedman test at or after menopause will frequently be false positive in result? Please explain. What is the mechanism of hemostasis in the intrauterine use of radium for metrorrhagia? Is the amenorrhea produced by 2,500 milligram-hours, for example, due to endarteritis of the endometrial vessels or to the depressing effect on the ovary or both?

M.D., California.

ANSWER.—A positive reaction to Friedman test, like a positive Aschheim-Zondek reaction, depends on the presence in the urine of large amounts of luteinizing hormone. Urine from pregnant women contains a large amount of this hormone and when injected into a rabbit brings about the formation of corpora lutea or corpora hemorrhagica in the ovaries of the rabbit. Occasionally the urine of women in the menopause contains sufficient gonadotropic hormone to bring about changes in the ovaries of rabbits which may simulate those induced by urine from pregnant women or produce changes in the ovaries which may be misinterpreted as being due to pregnancy urine.

The action of radium is primarily on the endometrium and consists of fibrosis of the intima of the endometrial blood vessels. The ovaries are not damaged much because of the distance from the center of irradiation. Roentgen therapy, on the other hand, produces its favorable effect in cases of uterine bleeding chiefly by means of destruction of ovarian function.

The amount of radiation therapy mentioned in the query—namely, 2,500 milligram-hours, is too high. In most cases the desired effect can be obtained with 1,200 to 1,800 milligram-hours.

WAR MELANOSIS

To the Editor:—Sporadic cases of melanosis which develops on the faces of women have been reported throughout Japan during and after the war. A study of 68 cases in our clinic did not reveal evidence of the cause of the disease. Cases were common among women between the ages of 18 and 54. It occurred most frequently among women in the thirties. The lesions are symmetric, diffuse and darkly pigmented. Many occurred after the inflammatory symptoms (itching and desquamation). Lesions occurred during the summer or autumn. It was suspected that the disease might be due to dysfunction of the endocrine system, photosensitization, disharmony of vegetative nerves, stimulants found in food or irritation by coal tar preparations in cosmetics. Effective treatment is unknown. This disease resembles closely Riehl's melanosis but could not be considered identical as it is limited in age and sex. I wish to classify the disease in the group of war melanoses and call it "melanosis facici feminea." War melanosis occurred mostly in the defeated countries in the first world war. What is the situation regarding this disease in your country?

M.D., Japan..

ANSWER.—There have been no cases of a similar nature reported in this country. The cases seen in Japan are probably examples, as the author notes, of war melanosis similar to the Austrian Riehl's melanosis of World War I. The condition was attributed to a number or a combination of factors such as substitute materials in baking, photosensitization and impurities in cosmetics.

WOUNDS CONTAMINATED BY BERYLLIUM PHOSPHORUS

To the Editor:—I have had under my care since the end of February 1948 a patient who cut his hand on a broken fluorescent electric light globe during February. The laceration was in the hypothenar eminence of the right hand, on the ulnar border. This laceration was approximately 1 inch (2.54 cm.) in width and penetrated into the hand about ¾ inch (1.9 cm.). Foreign body was not present in the wound. The wound was closed, but it soon became obvious that it was not healing properly. Purulent discharge was minimal. The wound was opened, and gradually a large mass of granulation tissue appeared. Repeated probing of the wound did not reveal a foreign body. The granulation tissue was cauterized and still the wound did not heal. A course of roentgen therapy was given which seemed without beneficial effect. About six months after the injury the wound seemed to have healed. A mass of what appeared to be rather dense scar tissue was present in the hand. At intervals since the wound healed it has broken down, discharging only a slight amount of serous material. About one month ago I had occasion to see newspaper reports from Lorain, Ohio, concerning the discovery of cases of beryllium poisoning, apparently the result of the inhalation of dusts from a factory which processed the metal. In these reports mention was made of the failure of wounds contaminated with beryllium to heal. I then became suspicious that the lesion with which I was dealing was not healing because of the presence of beryllium on the glass with which the patient was cut. Only shortly after these newspaper reports were brought to my attention, a circular letter was put out by an association of building managers cautioning everyone handling fluorescent tubes to be extremely careful not to be cut with the glass from these tubes, because of the possibility that wounds thus sustained might not heal properly. My patient saw this report. He is now greatly worried that the injury to his hand will cause him permanent trouble. As this is an industrial injury I am especially concerned, since we anticipate seeing more of these wounds. I have looked in recent volumes of the *Index Medicus* for references concerning this condition. It seems that the pulmonary aspects of beryllium poisoning are the only ones which have been discussed. Can you give me any assistance in therapy? I have considered operating on this hand, excising the scar tissue en masse. Since such surgical treatment would produce a rather marked defect in this patient's hand I hesitate to do it, if eventual healing without operation can be anticipated. The patient is not disabled so that time is not a factor of great importance.

C. P. Doane, M.D., Fresno, Calif.

ANSWER.—Although there are many uncertainties in the understanding of the nature of beryllium action, it appears established that a number of cases of skin injury from broken fluorescent lamps have led to cutaneous or subcutaneous granulomas. Two recent publications are now cited: Skin Lesions in Persons Exposed to Beryllium Compounds (Grier, R. S., and others: *Jour. Ind. Hyg. & Toxicol.* 30:228 [July] 1948) and A Beryllium Case (Shook, C. F., and Powell, J. P.: *Indust. Med.* 17:403 [Oct.] 1948). The present consensus is that these granulomatous areas of the skin and subcutaneous tissues should be excised where practical. For diagnostic purposes the excised tissues should be examined in microscopic section for the characteristic features well described by the Grier group. At the same time other portions of the specimen should be examined spectroscopically for indications of the presence of beryllium. Wider experience, within the near future, may warrant more conservative treatment, but at this time surgical intervention appears essential. Within the past few months some, or all, fluorescent lamp manufacturers are said to have discontinued the inclusion of beryllium phosphors as a luminous factor. If true, this type of serious injury may be expected to disappear.

PROGNOSIS IN ERYTHROBLASTOSIS

To the Editor:—A married woman, 27 years of age, has been extremely nervous and depressed since the death of twins from erythroblastosis the day following their birth in July 1948. This was her first pregnancy. The mother is Rh negative and the father Rh positive (heterozygous). The laboratory report on the mother and father taken after the death of the twins showed that the mother was Rh negative and immunized, as indicated by the presence of blocking antibodies the titer of which was 1:32. This case was considered most unusual, since the first pregnancy resulted in erythroblastotic twins in the absence of previous transfusions. Adoption has been considered so that if a normal pregnancy was attempted about six months after the disappearance of all antibodies there would be less psychic shock should the second pregnancy also result in an erythroblastotic infant. 1. How long will it be before all antibodies have disappeared? 2. What are the probabilities that she will have a normal infant? 3. If she should have an erythroblastotic infant what are the chances of its surviving under the best of care?

M.D., New Jersey.

ANSWER.—Rh-Hr testing is delicate and errors are notoriously frequent except in a few central Rh testing laboratories. The titration of Rh antibodies is a difficult matter; the method has an intrinsic error of at least 100 per cent, and results from different laboratories can hardly be compared in view of the different methods of titration used. The query states that the husband is Rh positive (heterozygous). This statement is fully justified only if tests have been done on the husband's parents and one of them has been found to be Rh negative. If the statement is based on tests of the husband's blood alone—for example, the finding that he belongs to type Rh$_1$rh (type Rh$_1$,hr' positive), the assumption that the husband is heterozygous may be incorrect. Assuming that the titration of "blocking" antibodies has been correctly done, the evaluation of the titer is still not possible, since the method of titration is not specified—whether by the blocking method, plasma conglutination method, albumin-plasma conglutination method, antiglobulin technic (or developing technic). A titer of 32 units by the original blocking technic would correspond to the phenomenally high titer of about 1,000 units by the albumin-plasma technic or "developing" test. A titer of 32 units by the albumin-plasma technic often spells an unfavorable prognosis.

1. The length of time which it takes for antibodies to disappear depends mainly on the titer. When the titer is high, e. g., 1,000 units, the antibodies will as a rule persist for life, though there is a gradual decline in titer with time, and such a woman when she bears an Rh-positive fetus is usually doomed to have an early stillbirth. If the antibody titer is low, e. g., only 4 units, the antibodies may no longer be demonstrable in the patient's serum after a lapse of two years or longer.

2. The probabilities of having a normal infant depend mainly on the probabilities of carrying an Rh-negative fetus. If the husband is heterozygous then there is a 50 per cent chance of having an Rh-negative baby which would be free of erythroblastosis. If the husband is homozygous, then every baby will be Rh positive and subject to the effects of the maternal Rh antibodies. However, even an Rh-positive baby may prove to be normal when the titer of the maternal Rh antibodies is low. Actually, such babies are usually really erythroblastotic with "coated" red cells, but the manifestations are so mild that without the aid of careful laboratory studies the babies are passed as normal.

3. The chance of an erythroblastotic baby's surviving depends primarily on the height of the maternal antibody titer, though there are other factors of unknown nature which seem to affect the outcome. If the maternal titer of univalent Rh antibodies is high and present from the beginning of pregnancy, the fetus will probably die in utero before reaching the period of viability. If the titer is low, the baby can usually be carried to term and then may be saved by treatment with repeated transfusions of Rh-negative blood or by exchange transfusion. With higher antibody titers premature delivery and treatment by exchange may be necessary to save the baby. If the titer is low initially but suddenly rises to a high level after the fetus reaches the period of viability, the baby may still be saved by prompt delivery and immediate treatment by exchange transfusion. Each case must be individualized, but the history of a stillbirth or neonatal death from erythroblastosis is always a serious prognostic omen for future Rh-positive babies.

ICHTHYOSIS

To the Editor:—A 10 year old white boy is essentially in good health except for ichthyosis, which he has had since birth. He has a family history of this dermatologic condition. Please outline a plan of treatment including new therapeutic measures.

Bernard M. Ailts, M.D., Sweetwater, Texas.

ANSWER.—Mild cases sometimes clear up at puberty; others sometimes respond to the administration of vitamin A, and a few may respond for a time to the administration of thyroid substance. The skin should be anointed with a mixture of 1 or 2 per cent salicylic acid or 3 per cent sodium chloride in an oily base. The bath water should be softened by the addition of a starch preparation; the patient should use a mild soap or a soap substitute, and his clothes should be heavy enough to keep the body warm.

THERAPY OF HERPES ZOSTER

To the Editor:—What is the value of vaccination for herpes zoster?

M.D., Wisconsin.

ANSWER.—A specific treatment for herpes zoster is lacking. Many forms of therapy have been successful in numerous cases, but not in all cases. Vaccination is not effective. Before vaccination is used the following forms of treatment are recommended in the order named: (1) During acute stages one should apply soothing substances to the lesions, such as calamine lotion or powders. (2) Intramuscular injections of pituitrin may cure the patient or give considerable relief of pain. (3) Roentgen therapy has given many patients relief. (4) Cobra snake venom in doses of 1 cc. injected intramuscularly daily for ten to fourteen days. (5) Sympathectomy has been effective in postherpetic neuralgia of the face.

DRUGS IN HEART DISEASE

To the Editor:—Please describe the use of alpha-tocopherol, papaverine hydrochloride and myanesin® in the treatment of coronary and arteriovascular disease.

Irwin I. Lubowe, M.D., New York.

ANSWER.—Alpha-tocopherol is without benefit in the treatment of coronary or peripheral vascular disease.

Papaverine is used orally (100 to 200 mg. four times a day) or intravenously (65 to 100 mg.) for relief of pain in coronary insufficiency and coronary thrombosis. It is of value in suppressing ectopic pacemakers especially in coronary disease. It has also been shown to be of benefit in the treatment of massive pulmonary embolus with cor pulmonale (30 to 100 mg. intravenously injected slowly over one to two minutes) and in arterial occlusion (intravenously or intra-arterially proximal to the occlusion). It has no place in the treatment of chronic arterial disease.

Myanesin® (3-ortho-toloxy-1, 2-propanediol) is not a cardiovascular drug. Improvement following its use in the posthemiplegic state is on a neuromuscular, not a vascular basis.

INDUSTRIAL EXPOSURE TO LEAD

To the Editor:—Is there a method of preventing the symptoms of lead poisoning in those exposed to lead, for example workers in the storage battery industry. The average blood lead is 0.079 mg. per hundred cubic centimeters and the urinary lead excretion 0.123 mg. daily. Clinical symptoms are absent. The usual industrial safety measures are being observed. Can dicalcium phosphate or any other medication be employed to prevent the development of clinical symptoms?

Arnold Stanton, M.D., Richmond Hill, N. Y.

ANSWER.—The figures cited are not necessarily indicative of an intake of lead into the body. As high as 0.13 mg. in 100 cc. of blood has occurred in normal persons. Usually no significance is attached to a blood content less than 0.08 mg. per hundred cubic centimeters. As to the urine, the figure cited is with respect to the total daily output rather than to any fixed urinary quantity such as a liter. Customarily, any lead excretion below 0.1 mg. per liter is regarded as of questionable significance. If, in the present situation, abnormal quantities of lead are present, prevention of prospective damage may best be averted by further diminution in exposure. In the battery industry and particularly with respect to battery plate work, some lead may be present in the air. This may be inhaled, and some may be present on hands and garments and thus carried into the mouth. In this industry, any amount of mechanical protection is insufficient in the absence of intelligent workers and personal cooperation. Routine use of drugs or other chemicals is not regarded with favor in the prevention of lead poisoning among those harmfully exposed. Some merit may exist in well balanced diets, including milk as one item, and the avoidance of respiratory infections and alcoholic bouts. Shift in work duties for workers in whom lead poisoning appears imminent may be desirable. However, best results may be expected from the full elimination of significant exposure.

OXYGEN EXCLUSION TEST IN CORONARY DISEASE

To the Editor:—Please comment on the reliability of the oxygen exclusion test for the determination of the presence of coronary spasm, angina. If the reaction to the test is considered negative can one exclude angina as being due to coronary spasm? Is the test accepted by cardiologists and insurance companies?

M.D., West Virginia.

ANSWER.—The oxygen exclusion test for coronary heart disease is reliable if positive, provided one follows the criteria laid down by Dr. Robert Levy (Levy, R. L.; Patterson, J. E.; Clark, T. W., and Burenn, H. G.: J. A. M. A. 117:2113 [Dec. 20] 1941) and Patterson, J. E.; Clark, T. W., and Levy, R. L.: *Am. Heart J.* 23:837 [June] 1942). Coronary heart disease, however, can be present in the face of negative reactions; for example, in old myocardial infarction. During the test there may be slight changes in the electrocardiogram not due to coronary heart disease. These, as a rule, can be readily differentiated from the findings with a positive reaction to the test.

OVEN STERILIZATION

To the Editor:—When advising patients to sterilize dressings in the oven what is the optimal temperature and time to be recommended?

Walter Weinberger, M.D., Altoona, Pa.

ANSWER.—Sterilization by dry heat is effected at a temperature of 302 F. (150 C.) for one hour. The period of exposure is measured from the time the temperature reaches 302 F. Avoid higher temperatures to prevent charring of materials.

TESTOSTERONE IN HYPOGONADISM

To the Editor:—I have used testosterone for hypogonadal patients with apparently good response to treatment. Is there danger that cancer will develop in the genital tract or elsewhere because of the use of repeated doses of this preparation? It has been suggested that testosterone inhibits the normal functioning of the testicles, making continued use of testosterone necessary. Does the evidence support this latter statement?

M.D., Iowa.

ANSWER.—Experimental or clinical evidence is lacking to support the hypothesis that testosterone given to hypogonadal or climacteric males as replacement therapy will—in the absence of preexisting carcinoma in the genital tract—act as an etiologic agent in producing carcinoma there or elsewhere in the body. One should rule out as much as possible carcinoma of the prostate in those patients receiving this drug and carefully note any changes in the prostate which may be suggestive of cancer by frequent rectal examinations throughout the course of such therapy. In the event of suspicious changes of the prostate rectally, testosterone should be discontinued.

It is generally recognized that testosterone does not stimulate spermatogenesis. On the contrary, in patients with normal spermatozoa counts prolonged use of testosterone may induce azoospermia. This supports the physiologic concept that use of a hormone secreted by a gland of internal secretion tends to inhibit the function of that gland. Testosterone therapy therefore should be restricted to those patients in the climacteric, the true hypogonadal patient in whom the gonadotropic pituitary factor is of no value, or as a possible therapeutic test in differentiation of true hypogonadism from anxiety states.

TUBERCULOSIS AND COCCIDIOIDOMYCOSIS

To the Editor:—In Queries and Minor Notes (the Journal, January 1, p. 68) the following answer is given: "Coccidioidomycosis has been found in practically every part of the United States in persons who have not left these areas. There are certain parts of the country where the disease has a high incidence; namely, the desert regions of the West and the valley regions of California. The infection is common in these areas and rare in other regions of the country."

The phraseology of the answer, which probably does not convey the intent of the author, undoubtedly was to emphasize that the infection may be encountered in any physician's practice. It is true that the literature is confused by cases reported as coccidioidomycosis in which diagnoses were erroneous. For instance, 1 human and 1 animal case reported as originating in Canada most certainly were not coccidioidal. Moreover, cases reported as originating in various areas of the United States merely excluded association with the endemic area of the San Joaquin Valley of California. The broader endemic area indicated below was not comprehended and thus not excluded.

Few diseases occur in which there are such sharply defined endemic areas. Except in laboratory infections, one should be able to trace an association of bona fide coccidioidomycosis with an endemic area. If one cannot, it is probably because of some exotic association which is missed. This oversight is easy, for infections have been acquired merely by automobile and train travel through endemic areas or by handling dusty clothing or dusty products contaminated with the spores of the fungus. In the United States, as is indicated in the answer, it is the arid Southwest. The area includes western and southern Texas, southern New Mexico, probably the southwestern corner of Utah, the southern tip of Nevada, central and southern Arizona, the southern San Joaquin Valley of California and spottily the adjacent counties including arid areas in southern California as well as the eastern section of coastal counties which border the San Joaquin Valley. Thus, "the valley regions of California" is not accurate either, for most Californian valleys are not involved. For instance, even the northern part of the San Joaquin Valley and all the contiguous Sacramento Valley are not endemic areas.

Knowledge of the endemic areas is useful in suggesting the inclusion of coccidioidomycosis in differential diagnosis.

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ENCEPHALITIS IMMUNIZATION

To the Editor:—My attention has been called to a brief answer you have given to a question listed on page 1130 of the issue of The Journal dated Dec. 11, 1948, under the title "Encephalitis Immunization." The answer states that "immunization against the Japanese type of encephalitis is still in the stage of animal experimentation and has not been applied to human beings."

Although the first part of this answer may be more or less correct, the second part does not take into account the extensive attempts to immunize against the disease which have been carried out by the U. S. Army in Japan and Okinawa. Dr. A. B. Sabin has reported, in the issue of The Journal dated Feb. 1, 1947, pages 281-293, in his summary that Japanese B encephalitis mouse brain vaccine was administered to 60,000 to 70,000 of the military personnel stationed in the northern part of the island (Okinawa), in 1945.

I should also call your attention to War Department Technical Bulletin 181 published on April 6, 1947 entitled "Japanese B Encephalitis," which describes the vaccination for human beings in this disease.

I do not claim that these comments of mine answer the question asked by Dr. Harold B. Keyes, nor are they meant to imply that the degree to which the human vaccination procedures actually immunize is known, but they do amplify your answer.

John R. Paul, M.D., Yale Univ. School of Medicine.

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CARDIOVASCULAR REJECTEES

A Follow-Up Study

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One of the most useful methods for the determination of the significance and importance of symptoms and signs and of the accuracy of their appraisal is the follow-up study of the subjects in whom they are observed.

In 1943, reports[1] were published of the reexamination of 4,994 men disqualified for general military service in the armed forces of the United States of America, during World War II by local boards and induction stations, because of the diagnosis of cardiovascular defects. This was a combined study made by special medical advisory boards, consisting of cardiovascular experts in the five cities of Boston, Chicago, New York, Philadelphia and San Francisco, with the invaluable cooperation of the state and city directors of Selective Service. The reader is directed to the original reports for the description of the plan of procedure, the names of the members of the various teams and the details of the findings. For convenience, however, the more important data and the most significant conclusions of these reports will be presented herewith as background for the follow-up study made in 1947.

The chief reasons for the reexamination in 1943 were to determine (*a*) the problems in cardiovascular diagnosis that particularly concern the range of the normal cardiovascular system with respect to service, (*b*) the possible salvage of men for the army by reclassification as 1A[2] and (*c*) the comparison of opinions of cardiovascular experts with those of the examiners of local boards and induction stations to determine the desirability of such reexaminations in this or other special medical fields throughout the country.

Of the total number of 4,994 cardiovascular rejectees reexamined in 1943, 863 (17.3 per cent) were resubmitted as 1A. Chicago yielded the lowest salvage (3.88 per cent), probably because cardiovascular experts had already been freely used in the decision about doubtful cases, a worth while example to follow and one that would obviate the need of such full scale reexaminations in the future.

In 1943, there were eight problems of particular interest which remained unsolved and were in need of follow-up study.[1b] They were as follows:

> . . . (a) the interpretation of apical systolic murmurs (may they, if very slight or even slight, in the absence of any other abnormal or doubtful finding, be considered inadequate reason for rejection?); (b) the upper limits of the normal blood pressure (may the systolic pressure in very nervous young men be set perhaps as high as 160 mm. Hg. or even a shade more, provided the diastolic pressure does not exceed 90 mm. Hg.?); (c) the limits of the normal pulse rate at rest (may there not be a wider range, say from 40 to 120 per minute, than that actually given in the current criteria?); (d) the heart size, which also varies widely, especially according to body build, and may perhaps in a few normal individuals exceed the standards set by Hodges and Eyster; (e) the electrocardiogram, of which the wide range of normal has not yet been explored adequately; (f) neurocirculatory asthenia, difficult to diagnose in mild degree, but probably rejectable even when slight, unless there is an obvious cause which can be corrected; (g) recent rheumatic fever, a hazard even when the heart seems perfectly normal; and (h) exercise tests, the usefulness of which, in cardiovascular examination for military service, is open to question.

Finally, it was predicted that

> *A follow-up study of the men reclassified as 1A and especially of the doubtful "borderline" cases in the final 4F*[3] *group should, in the years to come, aid in solving some of the various problems in cardiovascular diagnosis that still remain.*[1b]

It seemed appropriate to make a first follow-up study in the spring of 1947, four years after the first reexamination study and long enough after the end of the war to assess the effects both of the war itself and of the postwar adjustment. This was done in the case of as many of the men who had been resubmitted as 1A in 1943 as could be reached in 1947. Some of the men who still present diagnostic problems should be followed up again in the future.

Because of lack of space this article has been abbreviated in The Journal. The complete paper will be found in the authors' reprints, which the authors will be pleased to send on request.

The work described in this paper was begun under a contract recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and Columbia University. The contract was transferred on Nov. 1, 1945, from the Office of Scientific Research and [illegible] Research and Development Board, Office of the [illegible]

[1] (*a*) Le[illegible] and White, P. D.: Report of Reexaminatior[illegible] for General Military Service, J. A. M. A. [illegible] (*b*) Fenn, G. K.; Kerr, W. J.; Levy, R. L.; [illegible] P. D.: Reexamination of 4,994 Men Rejected for General Military Service Because of the Diagnosis of Cardiovascular Defects: Individual Reports by the Chairmen of Special Medical Advisory Boards in Five Cities in Which the Combined Study was Made, Am. Heart J. 27:435 (April) 1944.

[2] The classification 1A, as used in this discussion, denotes fitness for full military duty with respect to the cardiovascular system. It does not exclude disqualification for other medical defects.

[3] The classification 4F in this report denotes unfitness for any military service because of cardiovascular reasons.

Of special "borderline" cases, of which there were 114 in Boston labeled "1A liberal," but not resubmitted for military service, 67 were also followed and will be discussed in an appendix to the present report; they formed an especially interesting group.

PRESENT FOLLOW-UP STUDY

The plan of procedure of examination in the five cities of Boston, Chicago, New York, Philadelphia and San Francisco in 1947 was essentially the same as in 1943, the standards used were identical in order to permit adequate comparison, and with rare exceptions the teams consisted of the same personnel, both medical and lay. As before, the directors of Selective Service were most helpful.

On this occasion, however, fewer of the men were available for two reasons: First, they came entirely voluntarily and many had had their fill of examinations; second, many had moved away, either from their original addresses in the cities in question or to other parts of the country. Nevertheless, an adequate number was reexamined to afford information of value: 134 in Boston, 93 in New York, 39 in San Francisco, 29 in Philadelphia and 8 in Chicago, a total of 303. Of this total of 303, all but 49 had been admitted to military service; of these 49 who were exempted a second time, 28 were rejected for medical reasons (mostly noncardiac) by the induction station or local board, and the other 21 were excluded for other reasons. The great majority of those admitted to the armed forces were finally discharged without disability after an average of two and one-half years of military service.

Among the 227 men reexamined in Boston and New York in 1947, 178 had been admitted to military service. Of these, 37 were discharged as disabled after an average of one year. Of these 37, there were 23 with noncardiac diagnoses and 14 with cardiovascular labels; the latter included "hypertension," "valvular disease," "coronary disease," "neurocirculatory asthenia" and "uncertain."

Several of the men reexamined had been wounded (10 from Boston and 2 from New York), and several had been decorated for valor. Of the originally resubmitted "1A group," 8 were killed in action.

At the time of follow-up study in 1947 almost all the men reexamined were in excellent or good health (259 of the 303) and were working. Several of those not working could not find jobs or were students. Only 4 were actually disabled.

The range of age of these men, four years older than at the first reexamination, was from 23 to 42, averaging about 30.

THE PARTICULAR CARDIOVASCULAR FINDINGS

The problems referred to in the 1943 report will be discussed in sequence.

A. Murmurs.—Although not the most difficult of the findings to assess, cardiac murmurs were the commonest. Armed with the established fact that very slight to slight systolic murmurs at the apex and pulmonary valve area can be within the normal range and are not to be construed as evidence of heart disease unless there are other associated signs, in particular cardiac enlargement, the special boards did not have much difficulty in assessing their significance and importance. A murmur of this type can be produced, for example, by the speeding up of the circulation through exercise in a perfectly normal young person who shows no murmur at all on rest. In many of the young men in question, there was also at the time of examination a certain amount of nervous stimulation which could act in a similar manner.

The loudness of murmurs has been shown to be clinically significant,[4] and so an attempt was made in some of the cases in this study to record the loudness and to assess the murmurs accordingly. In Boston, the examiners graded the murmurs on a scale of five (grade 1, very slight; grade 2, slight; grade 3, moderate; grade 4, loud; grade 5, very loud) and noted that the comparison of the intensities of the murmurs in 1943 and in 1947 was easier in consequence. Slight (grade 2) systolic murmurs at the apex are borderline or open to careful scrutiny, as is also true of systolic murmurs of moderate intensity (grade 3) at the pulmonary valve area, especially when the pulmonary second sound is unduly accentuated. Aortic systolic murmurs were much less common in our examinees, as they are in normal young men in general, and doubtless should be considered abnormal when more than very slight (grade 1) in intensity. Diastolic murmurs anywhere were adjudged abnormal.

The commonest cause of abnormally loud systolic murmurs in young men is rheumatic heart disease, and here either valvular deformity or cardiac dilatation, or both, may be responsible. Congenital cardiac defects and other causes are relatively rare. An attempt was made to diagnose the etiologic factor behind overloud murmurs. In only 4 cases of the 303 was a diagnosis of valvular ("rheumatic") heart disease made in 1947, and in at least 1 of these rheumatic fever was known to have occurred during military service. In 6 other cases the diagnosis of questionable valvular heart disease was made in 1947 on the basis of some increase in the loudness of murmurs.

Thus, although prior to our first reexamination in 1943 the commonest diagnosis causing the original rejection by local boards and induction stations of the men resubmitted by us as 1A was valvular ("rheumatic") heart disease, the present four year follow-up has not indicated that the problem is an important or difficult one for the cardiovascular expert. Future follow-up studies of cases of murmurs are, to be sure, still in order, but the evidence to date indicates the considerable value in the way of salvage of using cardiac consultants in the original appraisal of doubtful auscultatory findings.

Actually, murmurs were found to be common among these young men, but such murmurs were very slight (grade 1) or at most slight (grade 2) and almost entirely limited to the cardiac apex and pulmonary valve area. For example, in Boston among the 134 men examined, 79 (59 per cent) had murmurs and in only 2 was valvular heart disease diagnosed, 1 on the basis of slight mitral and aortic diastolic murmurs which had appeared since 1943 and the other on the basis of a grade 2 aortic systolic murmur. Of the other 77 men, 58 had apical systolic murmurs in 1943 or 1947, on both occasions in 29 instances (44 per cent of the 131 men without heart disease), while only 8 had aortic systolic murmurs, in 3 of whom the murmur was heard in both 1943 and 1947. There were also a few men (11) with very slight or slight "precordial" systolic murmurs and many with the unimportant pulmonary systolic murmur. It is of much interest that many of these murmurs were heard on only one of the two occasions. Thus, murmurs heard in 1943 and not in 1947 could be truly labeled as transient—there were 28 such cases; in only 2 of them was the murmur more than very slight.

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[4] Baker, L. A.; Sprague, H. B., and White, P. D.: The Clinical Significance of Loud Aortic and Apical Systolic Heart Murmurs Without Diastolic Murmurs, Am. J. M. Sc. 206: 31 (July) 1943.

In New York, an apical systolic murmur was heard in 37 of the 93 men reexamined in 1947, and in 30 instances these murmurs had been heard also in 1943, while in 7 men an apical systolic murmur heard in 1943 was no longer detected in 1947. Thus, a total of 44 (47 per cent) of these men showed such a murmur in either 1943 or 1947 or both. For 2 of the men in whom murmurs were heard in 1947, the diagnosis was "rheumatic heart disease." In 2 of those with apical systolic murmurs in 1947, very slight aortic systolic murmurs were also heard, but no diastolic murmurs at all were encountered.

Similar experiences were noted also in the other cities.

B. Blood Pressure.—The most difficult problem and one that remains unsolved by our more recent reexamination is the appraisal of "borderline" blood pressure levels. These are readings a little over 150 mm. mercury systolic or 90 mm. diastolic, especially the former, when they occur transiently, that is, at the beginning of the examination followed by subsidence on quiet rest for a half hour. It is true that the study which was carried on during the recent war [5] of the annual blood pressures of 22,741 officers in the United States Army recorded over a period of many years showed a distinct tendency for the establishment of permanent hypertension and eventual cardiovascular disability among those showing transient hypertension in their earlier years, especially when they were also overweight and showed transient tachycardia; nevertheless, there were many men among those officers who, following the occurrence of transient hypertension, never showed permanent hypertension. That, in general, appears to be the finding in the present study, but the number is small and the period of follow-up is short, so that further observation of our cases after longer intervals will be necessary to discover what features distinguish the two groups.

Of 67 men among the total of 303 who showed transient hypertension in 1943, 33 had normal blood pressure readings in 1947, 17 still showed transient hypertension and 17 were found to have sustained hypertension; the Boston figures were 8, 9 and 13, respectively, and those from New York were 17, 6 and 3. Of those with normal blood pressure readings in 1943, 13 showed transient hypertension in 1947 and in 10 others sustained hypertension had developed. Incidentally, there were 5 men in 1943 who did not quite achieve the normal limits after resting and who showed normal levels in 1947, either at once (2 cases) or after resting (3 cases).

An attempt has been made to note correlations in these cases of borderline blood pressure with weight and pulse rate, but the results to date are not conclusive. Among the 8 men in Boston with transient hypertension in 1943 and normal blood pressure readings in 1947, 3 were overweight and had gained more weight over the interval of four years. Two of the 8 had transient tachycardia in 1943, and 1 showed transient tachycardia in 1947. Of the 13 men in Boston with transient hypertension in 1943 who showed more sustained hypertension in 1947, 7 were overweight and several had gained a great deal, namely 39 pounds (17.7 Kg.), 26 pounds (11.8 Kg.) and 31 pounds (14.1 Kg.). Five of these 13 had had transient tachycardia in 1943 and 8 showed transient to sustained tachycardia in 1947. Of the 9 Boston men with transient hypertension in 1943 who still showed transient hypertension in 1947, 6 were overweight, 1 showed tachycardia in 1943 and 1947 and 1 showed tachycardia in 1947. Of 6 men in the Boston group with normal blood pressure in 1943 who showed transient hypertension in 1947, 3 were overweight, 1 showed transient tachycardia in 1943 and also in 1947 and another showed transient tachycardia in 1947. Of 6 persons with normal blood pressure in 1943 who showed sustained hypertension in 1947, all were overweight and 1 showed transient tachycardia on both examinations.

Two of the men with transient hypertension in 1943 who showed normal blood pressures in 1947 had a family history of hypertension. Two of the 9 men with transient hypertension in 1943 and transient hypertension in 1947 had a family history of hypertension. Of the 6 with normal blood pressure in 1943 and transient hypertension in 1947, 2 had positive family histories, and of the 6 with normal blood pressure in 1943 and sustained hypertension in 1947, 1 had a positive family history and 1 had a questionable family history. Of the 13 men who had transient hypertension in 1947 and more sustained hypertension in 1947, 6 had a family history of hypertension and 1 had a questionable family history of hypertension.

These findings are suggestive with particular reference to the importance of overweight, but there are obviously many exceptions and a longer follow-up study will be necessary.

C. Pulse Rate.—The next problem concerns the heart rate and, in particular, tachycardia. Rates above 100 a minute were acceptable in 1943 if they slowed with rest, that is, if tachycardia was transient. Slow pulse rates, below 50, were rare and were not a problem, provided electrocardiography was available. Transient tachycardia was commoner in 1943 than in 1947; many of the men (19 of 35) showing temporarily fast pulses before had normal rates the second time, several (13) still showed transient tachycardia and only 3 had sustained tachycardia. Several men (11) with normal heart rates in 1943 showed, on the other hand, transient tachycardia in 1947, and 2 had sustained tachycardia. One of these was conspicuously obese, weighing 251 pounds (113.8 Kg.) in 1943 and 262 (118 Kg.) in 1947. Two men whose heart rates had persisted at a level slightly above 100 in 1943 showed normal heart rates and blood pressures in 1947.

D. Heart Size.—The range of the so-called normal heart size is great and as yet ill defined. In 1943, it was agreed by our examining teams that the predicted transverse diameter of the heart shadow on the teleroentgenogram according to the Hodges-Eyster stand-

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5. Hillman, C. C.; Levy, R. L.; Stroud, W. D., and White, P. D.: Studies of Blood Pressure in Army Officers: Observations Based on an Analysis of the Medical Records of 22,741 Officers of the United States Army, J. A. M. A. **125**: 699 (July 8) 1944. Levy, R. L.; Hillman, C. C.; Stroud, W. D., and White, P. D.: Transient Hypertension: Its Significance in Terms of Later Development of Sustained Hypertension and Cardiovascular-Renal Diseases, ibid. **126**: 829 (Nov. 25) 1944. Levy, R. L.; White, P. D.; Stroud, W. D., and Hillman, C. C.: Transient Hypertension: The Relative Prognostic Importance of Various Systolic and Diastolic Levels, ibid. **128**:1059 (Aug. 11) 1945; Transient Tachycardia: Prognostic Significance Alone and in Association with Transient Hypertension, ibid. **129**: 585 (Oct. 27) 1945; Overweight: Its Prognostic Significance in Relation to Hypertension and Cardiovascular-Renal Diseases, ibid. **131**: 951 (July 20) 1946; Sustained Hypertension: Predisposing Factors and Causes of Disability and Death, ibid. **135**: 77 (Sept. 13) 1947.

ards for age, height and weight should, with rare exceptions, be used as our guide and that, if the actual measurement were more than 1 cm. greater than the predicted transverse diameter, cardiac enlargement would be diagnosed and the man excluded from the 1A group. In 1947, only 4 of the 303 men (1.3 per cent) showed an increase in heart size above the normal upper limit agreed on, although 7 others were "borderline." One of the 4 men with abnormal increase in heart size was hypertensive; the condition in the other 3 was unexplained. A number of men showed appreciably smaller measurements in 1947, including several who were "borderline" or very slightly above in 1943 (but were judged normal for their build because they had very wide chests); these decreases in size, as well as the increases in size, were usually slight and thought to be within the range of error of measurement and physiologic variation. In a few men there was some change in shape, especially an increase or decrease in the pulmonary artery shadow, sufficient in 1 to raise the question of a diseased state. In 1 man an overprominent pulmonary artery without other abnormalities was noted to be present in 1943, as well as in 1947, and raised the question of a congenital defect.

E. Electrocardiogram.—Here there was little difficulty, despite the fact that the range of the normal was wide and a few doubtful cases were encountered. Four men (1.3 per cent) showed minor changes or questionable abnormalities in 1947 not present in 1943; the causes for such changes were obscure; they could be physiologic, although rheumatic, hypertensive and coronary causes must be under suspicion. These changes consisted of some lowering of the T waves or slight changes in their shape, and in 1 man very slight widening of the QRS complexes. A fifth case showed a clearly prolonged P-R interval (0.24 second). Of 4 men with "borderline" electrocardiograms in 1943, those of 2 were unchanged in 1947, one looked a little more normal and one slightly less so. One man classified as 1A in 1943, despite a slightly abnormal electrocardiogram (low T waves in lead I) showed the same record in 1947.

F. Neurocirculatory Asthenia.—There was not much of a problem here either, in large part because of rejection of men with clearcut disease in the first place by local boards and induction stations, confirmed by our special cardiovascular examiners in 1943. Seven men were thought in 1947 to have neurocirculatory asthenia, not diagnosed in 1943, and there were 6 questionable cases.

G. Rheumatic Fever.—Despite the fact that a considerable number of the men had had rheumatic fever in the past (for the most part more than five years prior to induction), only 2, and perhaps a third, had had active rheumatism between 1943 and 1947. All 3 showed rheumatic heart disease in 1947 not diagnosed by the special examining boards in 1943. In Boston, 1 of these men was among 20 with a rheumatic history and another occurred among a similar group of 20 in New York. No men from the total group of 303 showed rheumatic heart disease who had had no history of rheumatism.

The New York experience is of special interest. Nineteen men gave a history of rheumatic fever prior to the first reexamination in 1943; one gave a history of chorea. The average time elapsing between the last episode of rheumatism and 1943 was 11.7 years; the range was from one to twenty-four years. In only 2 instances was this interval less than five years. Of these 20 men with a history of rheumatic fever, 16 saw active service, 3 were rejected for a second time after having been passed by the special board and 1 was deferred because of occupation. Two were discharged from the Army after having been in service for less than one year—with the diagnosis of neurocirculatory asthenia and 1 because of a neuropsychiatric disorder. In not a single instance in these 20 men was there a recurrence of acute rheumatic manifestations or of carditis. One who did not see service, and in whose case a diagnosis of rheumatic heart disease was made by the special examining board in 1947—a reversal of its previous opinion—said he felt occasional mild joint pains during his life as a civilian between 1943 and 1947.

Follow-Up Study of Cardiovascular Rejectees by the Veterans Administration, September 1948

	Discharged for Cardiovascular Conditions											
	Rheumatic Fever	Rheumatic "Valvular" Heart Disease	Hypertension	Neurocirculatory Asthenia or Anxiety Neurosis	Other Diagnoses	Total	Discharged for Other Conditions	Discharged for Nonmedical Reasons	Discharged by Death *	Discharged for Disability—Record Not Obtainable	No Record of Discharge for Disability; No Claim	Total
Boston	7	0	1	4	1	13	9	..	4(3*)	30	45	101
Chicago	1	1	0	1	0	3	1	..	.....	7	11	22
New York	9	1	2	8	0	20	16	2	1	55	46	140
Philadelphia	0	0	0	1	0	1	6	2	4(3*)	20	46	79
San Francisco	0	2	2	2	1	7	8	1	2(2*)	41	46	105
Total	17	4	5	16	2	44	40	5	11(8*)	153	194	447 (245 have claim)

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* Number killed in action.

REPORT OF FOLLOW-UP STUDY BY VETERANS ADMINISTRATION

Dr. Traum, Dr. Wilcox, Dr. Robb and Dr. Kistin of the Veterans Administration sent us the following summary of the men who came under their jurisdiction among the total group of 447 who were accepted for military service of the 863 men resubmitted as 1A in 1943 by the special cardiovascular boards in the five cities involved. It is hoped that those men in their lists whom we ourselves have not yet reexamined may some day be reviewed by our groups for a more complete follow-up study.

In the table is given a summary of the Veterans Administration data which adds to the information obtainable at present, although the summary includes a number of men whom we ourselves have not yet reexamined and data on whom do not, therefore, appear in our own report.

SUMMARY AND CONCLUSIONS

1. A follow-up study was made in 1947 by special cardiovascular boards in Boston, Chicago, New York, Philadelphia and San Francisco of 303 young men who had been originally rejected for military service because of diagnoses of cardiovascular disease, hypertension or neurocirculatory asthenia, but later resubmitted as 1A in 1943 after examination by these same special cardiovascular boards.

2. Certain problems are reviewed in the light of this reexamination. Heart murmurs were the commonest cause for the original rejections, but their appraisal by the cardiologists was not considered difficult. The great majority of the murmurs were variable, unimportant and physiologic in type, being heard in at least half of these healthy young men. In 4 men rheumatic heart disease developed during the four years.

3. The most difficult problem was that of the appraisal of slight elevations of blood pressure, in particular of transient hypertension (over 150 mm. systolic or over 90 mm. diastolic, subsiding after one-half hour's rest). Of 67 men showing transient hypertension in 1943, 33 showed normal pressure readings in 1947; 17 still showed transient hypertension, and 17 had sustained hypertension. Thirteen with normal pressure in 1943 showed transient hypertension in 1947, and in 10 sustained hypertension had developed.

4. Of 35 with transient tachycardia in 1943 (heart rate over 100 subsiding after one-half hour's rest), 19 showed no tachycardia in 1947. In a few cases the reverse was true. Another study has shown that transient hypertension and transient tachycardia are of about equal prognostic importance with regard to the later development of sustained hypertension.

5. Heart size as measured by teleroentgenograms showed only minor variations, up or down, between the examinations in 1943 and those in 1947. In only 4 men did definite enlargement of the heart develop.

6. Electrocardiography also presented little difficulty. There were a few borderline cases noted on both occasions, but only one showed a distinct abnormality at the end of the four years.

7. Neurocirculatory asthenia was an uncommon development over the four year period—there were 7 men whose condition were so diagnosed in 1947 who were considered to be normal in 1943.

8. Valvular lesions indicating rheumatic heart disease, not evident in 1943, were noted in 4 men in 1947. Many others gave a history of rheumatic fever in childhood or early adult life, but showed no sequelae.

9. In general, the 303 men served long and well in the armed forces, even though a few were discharged for cardiovascular reasons and, like others of the group with noncardiac disorders, are now under the jurisdiction of the Veterans Administration. Eight of the 447 original rejectees who were accepted for service were killed in action. In the group with a history of rheumatic fever in early childhood or early adult life, recurrence of activity between 1943 and 1947 was distinctly uncommon, even in those who saw active war service. In almost all, rheumatic fever had occurred at least five years before induction. Valvular lesions indicating heart disease, not evident in 1943, were noted in only 4 men in 1947.

PHYSICAL TREATMENT OF POLIOMYELITIS

Responsibilities of the Physician in General Practice

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By choice and by necessity, the physician in the general practice of medicine is frequently called on to care for any or all phases of acute anterior poliomyelitis and must therefore be prepared to use certain diagnostic and therapeutic tools of physical medicine. This discussion will be limited to the responsibilities of the physician utilizing those tools in the care of the after effects of poliomyelitis during the convalescent stages.

No known method of treatment, chemical or physical, can appreciably alter the patterns of destruction wrought by the invasion of the virus in the central nervous system during the acute stage of the disease. The extent of recovery obtained in any individual patient still depends on the physician's ability to make the most effective use of those neuromuscular units left intact after all inflammation has subsided in the central nervous system. To this end great progress has been made, particularly in the physical treatment of the convalescent stage, but the more that is known about the treatment of the after effects of this disease during convalescence, the more difficult it becomes. The increasing success of such treatment has been due to the development of highly refined routines of care which must be carried out with great precision over long periods of time.

However, no magical formula for mixing together heat, massage and exercise has been discovered. The value of physical treatment is completely dependent on the ability of the physician first to evaluate the specific needs of his patients and, on the basis of this knowledge, then outline the individual programs of care. No physician should undertake the care of convalescent poliomyelitis unless he thoroughly appreciates the responsibilities that he must assume and the physical tools with which he must work to fulfil these responsibilities.

First of all, the physician must be able to evaluate accurately the site and extent of neuromuscular involvement. No form of treatment can be intelligently prescribed unless based on this knowledge. The strength of individual muscles and muscle groups can best be determined by the so-called manual muscle strength test. This test is one of the diagnostic measures utilized by physical medicine and is based on the ability of the patient voluntarily to contract specific muscle groups so that the bodily segments activated by these muscles move through specific planes of motion against known resistance. These tests are accurate and trustworthy only when performed by the physician or therapist skilled in functional anatomy and kinesiology.

All physicians should be able to make a consistently accurate muscle test or, at least, be able to understand thoroughly the results of such a test when done by another physician or therapist. This test is part of the data absolutely necessary for the intelligent use of such physical agents as muscle reeducation, gait training and the use of assistive, supportive and protective apparatus. Simply to permit a patient to sit up in bed might

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be extremely dangerous unless the status of the muscle groups about the trunk, neck and upper extremities is known.

At the present time, no other type of test will give us the practical information as does the manual muscle strength test. The determinations of the electrical excitability of nerve and muscle by plotting strength-duration curves, chronaxia, tetanus ratio and the like are of very limited value in the spotty type of central nervous system lesion found in poliomyelitis—except in the differential diagnosis of such conditions as the primary myopathies, polyneuritis, hysteria or malingering. Likewise, electromyographic studies have little practical clinical significance at the present time. Therefore, the evaluation of the extent and site of neuromuscular involvement which forms the basis for all treatment of poliomyelitis must depend on the physician's ability to do an accurate manual muscle strength test or accurately interpret the results of this test when done by another physician or therapist.

The physician must next be able to obtain effective action of all remaining neuromuscular units, either through his own personal use of physical treatment or through his prescription to the trained therapist. Effective use of the intact neuromuscular units can be accomplished only by therapeutic exercise in the form of specific muscle reeducation followed by the specific functional retraining of bodily segments. In the moderately or severely involved patients, such treatment must be carried out intelligently and meticulously over many months or even years. It is this phase of treatment that forms the keystone of the over-all program of care. Unless the involved muscles are trained to work coordinately and with maximum strength and endurance, the most effective use of the neuromuscular units left intact after the initial damage to the central nervous system can never be realized. No athlete in his physical endeavors ever needed a coach so much as these patients need muscle reeducation, because the patient must be assisted to achieve normal functional capacity with far less than normal numbers of available motor nerve cells and muscle fibers. Too often the parents are told that their child will "outgrow" his weakness only because the physician does not appreciate the value of skilled muscle reeducation or has long forgotten his functional anatomy and is at a loss to give or prescribe the proper care.

The physician must next be able to anticipate and correct or minimize the factors responsible for musculoskeletal deformities. Unfortunately, poliomyelitis is complicated by the tendency toward the development of pathologic sequelae caused by, but far removed from, the damage to the lower motor neurons in the central nervous system. When the function of these cell masses is lost in whole or in part, changes in the musculoskeletal system must follow. It is true that one can do nothing to prevent the weakness and atrophy that must follow actual denervation of muscle fibers, but one can and must prevent the structural changes that develop in bodily segments inadequately supported. These changes or deformities have just one cause: persistent faulty alinement of the bodily segments.

These faulty positions may occur during periods of so-called rest if the segments are held in abnormal alinement by such factors as weakness, pain and muscle spasm. Here, physical medicine combats such distortion by supporting weakened segments in normal alinement by pillows, sand bags and, when necessary, light splints that can be easily removed to permit the application of other forms of treatment. Pain can be relieved and spasm released by the intelligent use of heat, massage and passive motion. The use of hot packs has been widely advocated, but many other forms of heat, if properly applied, will give similar results. In some cases, massage is soothing and relaxing and should be used even in the acute stage. In other cases, massage is irritating and cannot be used with beneficial effects until the inflammation in the nervous system has quieted down. Passive motion is probably the most important single factor in physical treatment during the early convalescence because it helps prevent contractures of muscular, ligamentous, fascial and periarticular structures, assists venous and lymphatic circulation and establishes reflex tone in reinnervated fibers. Like all other valuable therapeutic measures, it may be harmful if used carelessly and too vigorously.

Many musculoskeletal deformities occur and/or progress rapidly because of faulty use of bodily segments during daily physical activity, particularly during the years of rapid bone growth in childhood and adolescence. All activities must be carried out with as nearly normal patterns of motion and as nearly normal alinement of bodily segments as possible if distortion of bony and other supportive structures is to be kept at a minimum. The physician must not only be capable of noting the earliest deviations from normal patterns of motion and weight bearing but must also be capable of correcting or minimizing these faults through functional training and, when necessary, the use of assistive and supportive apparatus, such as corsets, braces and crutches.

Finally, the physician should appreciate the frequent need for, and value of, certain orthopedic surgical procedures during the convalescent stage. In general, it has been stated that when orthopedic surgical treatment is indicated to correct deformity, increase functional capacity and assure future security of bodily segments, it should be deferred until the chronic stage or, in children, after bone formation is well advanced. This is only partially true. Relatively simple surgical procedures, such as tenotomies of the iliotibial band or heel cord, if done early in the convalescent program, often permit restoration of bodily alinement possible in no other way; they not only prevent irreversible and severely handicapping structural changes from taking place but also permit the more effective use of muscle reeducation and functional training.

Physical medicine must not be thought of as in competition with orthopedic surgery. It is essential that the physician caring for the convalescent phase of this disease foresee the possibilities of later surgical procedures and through his treatment maintain the involved segments in such condition that, if necessary, the surgeon can add to the patient's greater functional capacity and security at the optimum time in the over-all program for maximum rehabilitation.

SUMMARY

The physician who assumes the responsibility of the physical treatment of convalescent poliomyelitis must be prepared to: (1) evaluate the site and extent of neuromuscular involvement, (2) obtain coordinate and effective use of all remaining neuromuscular units, (3) prevent or minimize the development of musculoskeletal deformities, (4) appreciate the frequent need for certain orthopedic surgical procedures during the convalescent stage and (5) foresee and prepare the involved bodily segment for any necessary orthopedic surgical treatment in the chronic stage.

PHYSICAL TREATMENT OF BACKACHE

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Pain low in the back is a common reason for patients to seek medical aid. Many backaches may be diagnosed roentgenologically as resulting from congenital anomalies, bony deformities, traumatic injuries to bone, arthritic changes, metastatic tumors or, occasionally, metabolic changes. In patients with such disorders the treatment prescribed depends on the pathologic changes found. However, there is a larger number of patients in whom the backache is not due to demonstrable bony change. In many of these patients the pain may be poorly localized. Although relief of pain, to a large extent, depends on removal of the cause, the mechanism of response to injury to the back affects the intensity and duration of pain. Therefore, these responses to injury influence treatment of painful injuries of the low back.

MECHANISM OF BACKACHE

When the back is injured, whether the injury be to fibrous, muscular or bony tissue, stimulation of pain endings initiates a reflex muscle spasm causing extensive contraction of the back muscles and limitation of motion. This reflex muscle spasm or splinting appears to be protective to immobilize the injured area and allow the normal mechanism of repair to occur. The muscle spasm may be localized around the site of the injury, or it may be generalized over the muscles of the back, the hips and, often the lower extremities. Muscle spasm for a prolonged period produces pain in the muscle involved and also pain at the attachment of the muscle to bone. Therefore, one finds that when muscle spasm has been present for a time the muscle belly is tender to palpation, but often the site of bony attachment is even more tender. Almost routinely when muscle spasm has been present, there will be tenderness along the iliac crests, over the sacrum or over the vertebral spines or transverse processes where the muscles in spasm have their attachment. This tenderness is not caused by the original injury but is related to the secondary muscle spasm. Thus, the mechanism of muscle spasm, although originally protective, may aggravate and extend the painful area in the back.

It is observed frequently, when minor trauma to the back has occurred, that after several days of muscle spasm the original site of pain is nontender but the pain and tenderness induced by the prolonged muscle spasm are sufficient to maintain the cycle. Relief of muscle spasm in these cases brings prompt relief of all symptoms. Another property of prolonged muscle spasm is that fixed limitation of motion is produced. Just as fibrous tissue is laid down to form the scar in injury to the skin, so also is it laid down in injured muscle and also in normal muscles if they are immobilized. This production of scar tissue with fixation of muscle fibers progresses relatively rapidly. Frohlich and Meyer[1] reported that fibrous contractures could be demonstrated grossly in cats after only four to five days of immobilization. As the fibrous contracture is produced, the ability to extend or stretch the muscle is reduced. Stretching of this contracture is equally as painful as overstretching normal muscle. Protective muscle spasm is initiated if the contracture is stretched, and the patient involuntarily splints the synergistic muscles to protect the painful one. This involuntary limitation of motion contributes to a progressively increasing contracture.

METHOD OF TREATMENT

Treatment of low back pain has a twofold aim: to relieve the pain in the area of initial trauma and to relieve the muscle spasm and its concomitant effects. For the relief of muscle pain, heat is one of the best analgesics. All types of heat are useful to relieve deep pain or muscle spasm. Short wave diathermy is probably in general preference today because of its efficacy and ease of administration. However, it is my experience that woolen hot packs, heated in boiling water, centrifuged nearly dry and then quickly applied, are the most effective method of relieving muscle spasm.

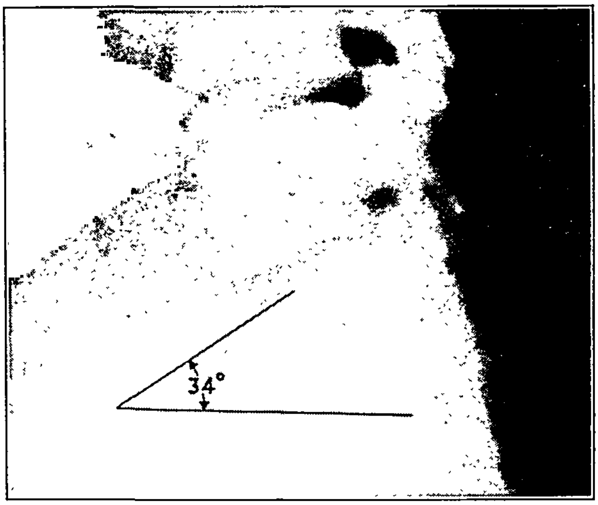

Fig. 1.—Normal back. The lumbosacral angle, the angle formed between the horizontal plane and the superior border of the sacrum, is 34 degrees (from Archer, V. W.: the Osseous System: A Handbook of Roentgen Diagnosis, Chicago, The Year Book Publishers, Inc., 1945).

These packs feel extremely hot since they are applied at a temperature of about 80 C., but because of their low water content there is too little heat to blister the skin. After the application of heat, massage is used to increase the threshold for pain and to obtain greater relaxation. Frequently, nodules may be palpated at the sites of tenderness, which disappear with massage. Whether these nodules are local areas of muscle spasm or connective tissue is difficult to determine, but as they are massaged away the tenderness diminishes. Massage is begun gently and increased in pressure gradually as the patient's tolerance increases. When massage is used in this manner, it is pleasant as well as beneficial.

Neither heat nor massage is able to stretch muscles out to their full resting length. Therefore, these forms of treatment are followed by passive or active stretching exercises to increase suppleness. Stretching exercises must be vigorous and must be designed to stretch the muscles which have been held in a shortened position. The muscles most frequently involved in backache are the erector spinae and the extensors, abductors

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[1] Frohlich, A., and Meyer, H. H.: Untersuchungen über den Tetanus, Arch. f. exper. Path. u. Pharmakol. 79: 55, 1915-1916.

and flexors of the hips. However, any muscles may be involved in the individual case. Movement of these muscles through the range from full contraction to complete relaxation prevents the development of connective tissue which would tie the muscle fibers down with fibrous contractures and perhaps lead to a permanent deformity.

COMMON CAUSES OF BACKACHE

Among the conditions commonly causing backache is poor posture or relaxed posture with increased lordosis and kyphosis. Because of the more vertical position of the faces of the lower lumbar vertebrae (figs. 1 and 2), the shearing stress between vertebrae is increased and a greater share of support of the weight of the body is transferred to the muscles and ligaments uniting the vertebrae (fig. 3). This stress causes chronic pain low in the back associated with painful muscle spasm. As the muscles of the back fatigue, the lordosis, and with it the strain, becomes more pronounced. With the development of the relaxed posture the iliotibial band of fascia, which runs from the lumbosacral fascia and the iliac crests down over the lateral side of the thigh to insert below the knee, is put in a relaxed position and gradually shortens. As the iliotibial band shortens, it creates a fibrous barrier to resumption of normal posture. By fixing the lumbar part of the spine in a lordotic position, the iliotibial band aggravates the strain further. Treatment of this condition is threefold: stretching of the iliotibial band and low part of the back to establish normal mobility, resistance exercises to increase the strength of the back muscles and training in correct habits of posture.

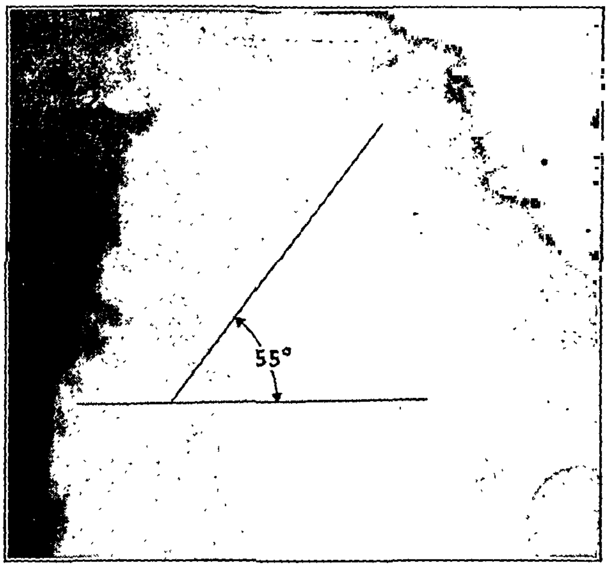

Fig. 2.—Lordosis. The lumbosacral angle is 55 degrees. The shearing stress on the muscles and ligaments has been increased by 46 per cent (from Archer, V. W.: The Osseous System: A Handbook of Roentgen Diagnosis, Chicago, The Year Book Publishers, Inc., 1945).

Acute lumbar strain or acute myofascitis usually is the result of lifting. Immobilization of an acute muscle strain allows development of fibrosis and prolongs the condition. As Bankart stated concisely, "Immobilization of acute back strain turns it into a chronic one. Immobilization of a chronic back strain perpetuates it indefinitely."[2] Therefore, treatment consists of heat and massage for analgesia and relaxation and stretching to mobilize the involved muscles as just described.

Occasionally, after a twisting motion, the patient may experience a sudden stabbing pain over the sacrum with spasm of the back muscles and inability to stand erect. Tenderness is definitely localized over one or the other posterior superior iliac spines. This is an acute sacroiliac strain, probably due to a slight dis-

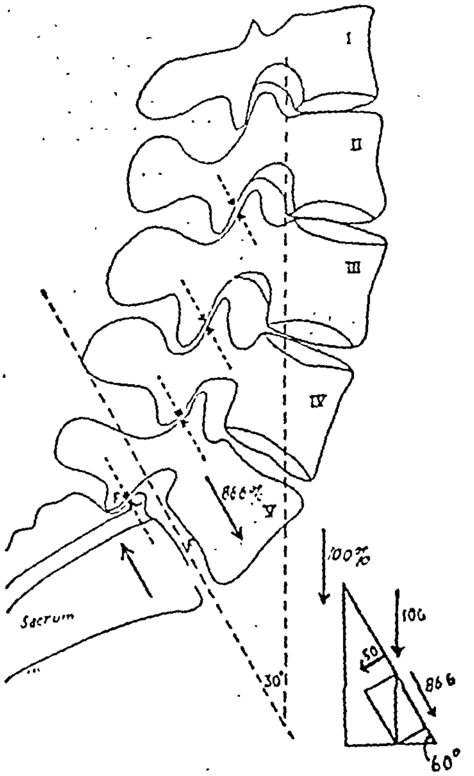

Fig. 3.—Diagram showing shearing forces acting on the muscles, ligaments and articular facets of the lumbosacral angle. When the lumbosacral angle is 30 degrees, the shearing force equals 50 per cent of the weight due to gravity. With a lumbosacral angle of 60 degrees, the shearing force is 86.6 per cent of the total weight (from Chandler, F. A.: Lesions of the Isthmus [Pars Interarticuralis] of the Laminae of the Lower Lumbar Vertebrae and Their Relation to Spondylolisthesis, Surg., Gynec. & Obst. 53: 273, 1931).

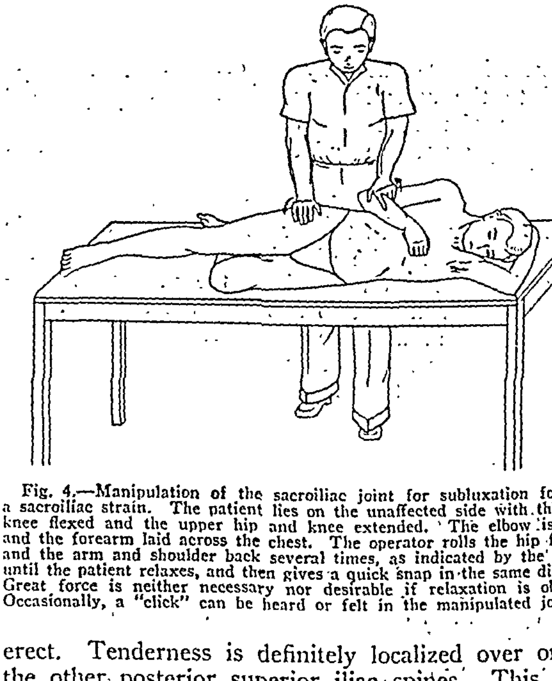

Fig. 4.—Manipulation of the sacroiliac joint for subluxation following a sacroiliac strain. The patient lies on the unaffected side with the lower knee flexed and the upper hip and knee extended. The elbow is flexed and the forearm laid across the chest. The operator rolls the hip forward and the arm and shoulder back several times, as indicated by the arrows, until the patient relaxes, and then gives a quick snap in the same direction. Great force is neither necessary nor desirable if relaxation is obtained. Occasionally, a "click" can be heard or felt in the manipulated joint.

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[2] Bankart, A. S. B.: Low Back Pain and Sciatica, Practitioner 157: 367, 1946.

placement in the sacroiliac joint. Flexion of the hip with the knee straight, or hyperextension of the hip, causes motion and pain in the involved joint. Other motions of the hip are relatively painless. After analgesia and relaxation have been induced by heat and massage, often dramatic relief can be obtained by manipulation of the involved joint as shown in figure 4. This simple maneuver requires relaxation of the patient and then a sudden mild snap of the joint rather than the application of force. Stretching of the hip and back extensors mobilizes the muscles held in spasm to protect the sacroiliac joint.

All patients with backache should be advised concerning the type of bed to use. The modern bed with a soft innerspring mattress aggravates backaches. It is the observation of many patients with chronic backache that they can sleep better on the floor than in a soft bed. Patients with backache should be advised to sleep on a felt or hair mattress placed on bed boards without a spring. This provides the flatness and support needed to allow the muscles of the back to relax during sleep. Many patients find relief from a chronic backache merely by substituting a firm flat bed for the modern flexible bed.

PHYSICAL TREATMENT OF COMMON DISORDERS OF THE FEET

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Physical therapy should be used to accomplish a particular result. For this reason, when disorders of the feet are to be treated, a clear knowledge of the etiologic aspects of the condition is needed, and the plan of treatment should have a logical reason.

For many years there have been lists of exercises described with the general idea of strengthening the feet. In a vague sort of way, painful feet have been considered weak feet, and exercises have been prescribed to strengthen them. Needless to say, exercises can be done for only a small part of each day; yet the patient is probably forced to bear weight many hours of that day. The muscles of the feet cannot be weaker than muscles elsewhere in the body, so that there is no reason for planning strengthening exercises for the feet alone.

This paper is limited to a discussion of treatment of the common disorders of the feet. Superficially, one thinks the common disorders to be corns, calluses, bunions, traumatic arthritis, clawed toes or hammer toes, pronations and supinations. These represent the results of pressure of shoes on feet which are malalined to fit the shoes in which they have been placed, or of variations in muscular pull, due either to contractures or to spasm. The primary causes for most obvious distortions are:

I. A failure of full evolutionary development which is evidenced by variations of the first metatarsal segment or of a metatarsus varus

II. Muscular contractures of hamstrings, calf muscles or the plantar muscles and fascias which result in pes equinus or pes cavus

III. Hyperflexibility of ligaments which results in pes valgus

IV. Such congenital or developmental anomalies as pes equino varus, accessory scaphoid bones, calcaneonavicular coalitions and epiphysitis which can cause strain and variations from the normal alinement

V. Pathologic conditions which cause paralyses or arthritis and present themselves here as in other parts of the body

The diagnosis of the fundamental cause of the disorder must be made by careful clinical examination and by roentgen examination. No final program should be planned without making as complete a study as possible in order to be sure of the underlying cause.

CAUSATION, DIAGNOSIS AND TREATMENT

I. *Metatarsal Variations.*—The commonest cause of foot strain is variations from normal of the metatarsal bones because of failure of full evolutionary development. Variations in the first metatarsal segment are most often noted, since in the development of the human foot the first metatarsal came to lie beside the second to add support to the medial side of the foot. Morton [1] has defined certain anatomic variations which lead to definite strain: (1) a short first metatarsal, or (2) posteriorly placed sesamoids under the first metatarsal, and (3) hypermobility of the first metatarsal segment (including the first cuneiform, which moves with the metatarsal). This is recognized in metatarsus primus varus, where a wide angulation of 10 to 19 degrees exists between the first and second metatarsals. The strain is due to the failure of the first metatarsal to support the medial border of the foot, and excess weight is then transferred to the second and third metatarsal heads, while the sustentaculum tali becomes depressed. Where metatarsus primus varus is present, narrow or pointed shoes cause a hallux valgus.

A condition closely related to these is metatarsus varus,[2] or an inturning of the entire forefoot. This is easily recognized in babies' feet but is difficult to diagnose in adults without carefully taken roentgenograms. This type of foot is usually broad anteriorly, as is that with metatarsus primus varus, and as it is very flexible it will be fitted to a narrow shoe. As the inward deviation makes proper fitting of shoes difficult, many of the secondary disorders may be noted, such as clawing, pes cavus, or pes valgus, bunions, corns and calluses.

Treatment in the adult consists in fitting the foot with a wide shoe, frequently an E. It may be flexible enough to permit the forefoot to take its normal position, or it may be a supporting shoe with a straight inside last. No shoe is built to fit this foot. The width of the anterior part of the foot should be measured in the weight-bearing position, as the ease with which it can be compressed tends to result in fitting it with a shoe which is far too narrow. When the forefoot is properly fitted, the heel of the shoe now obtainable is far too wide; hence this has to be corrected. The heel must be low to prevent thrust on the metatarsal heads, particularly when the first is short or hypermobile. A pad of felt, rubber or leather, to lift the first metatarsal head when it is short or hypermobile, stabilizes it and takes the thrust from the second, thus stopping the formation of calluses. When metatarsus varus is present in the infant's feet, casts should be applied as early as is possible. If the condition is mild, there will be a tendency to straighten, and stretching of the

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[1] Morton, D. J.: Biomechanics of the Human Foot, Lecture on Reconstruction Surgery of the Extremities, New York, Columbia University Press, 1944, p. 92. The Human Foot, ibid., 1935; Foot Disorders in General Practice, J. A. M. A. **109**: 1112 (Oct. 2) 1937.

[2] Baker, F.: Foot Strain: Etiology and Treatment, Arch. Phys. Med. **28**: 218 (April) 1947.

medial border of the foot in such a way as to carry the metatarsals lateralward at the tarsometatarsal joints with stretching of soft tissues may suffice, but usually casts followed by wedging at the medial border in line with the tarsometatarsal junction are indicated, to be followed by corrective shoes to the age of 5 or 6, or during the period of the development of the bones of the feet.

II. *Shortening of Soft Tissues.*—The second commonest cause for foot strain is that of shortening of soft tissues. Where contractures of soft tissues are present, the whole alinement of the body on the feet is shifted. The gastrocnemius soleus group shows its first evidence of shortening at about the age of 7 and usually results in an inversion of the foot due to the tilting of the os calcis.

Pes cavus is congenital routinely and is accompanied with a short heel cord. It causes clawing of the toes, with consequent strain and pressure. The diagnosis of these conditions is made easily by observation, though roentgen examination should always be made to rule out bony abnormalities.

III. *Hyperflexibility of Soft Tissues.*—The third condition, hyperflexibility of soft tissues, has to be treated by fixation to allow shortening. Later shoes must hold the foot in alinement to permit the best opportunity for muscular pulls.

IV. *Congenital Anomalies.*—Congenital anomalies as compared to the etiologic factors already mentioned are rare. When they are sufficient to cause strain, orthopedic measures are usually necessary.

V. *Paralysis and Rheumatoid Arthritis.*—Paralysis and rheumatoid arthritis are dependent on the same manner of treatment as elsewhere in the body.

Treatment.—It has been emphasized that attempts at correction of the causative factors leading to the common foot disorders and the careful choosing of shoes to permit the best alinement of the feet are of first importance in the treatment of the primary variations from normal. Exercises to develop muscular power have no place in treatment of foot strain. If the general bodily musculature has been weakened by any debilitating condition, then reconditioning exercises are of importance for the muscles of the feet as they are for all muscles of the body. The idea of the relief of strain by "foot exercises" is built on a false premise.

Physical Treatment: Physical treatment is absolutely necessary for the relief of acutely painful feet. Where there has been severe strain, the pain with its accompanying muscular guarding or spasm must be controlled before more permanent management of the underlying cause can be instituted. When physical treatment is given, the patient should be in the supine position for the purpose of obtaining general relaxation. Spasm and pain are most easily controlled with large hot packs wrung as dry as possible. Whirlpool, hot bath or contrast baths are helpful. Radiant heat or diathermy may so affect the ligaments or periosteum as to increase rather than decrease the pain. After thirty to forty minutes the wet heat should be followed with very light stroking (effleurage) massage. The massage can be gradually deepened, but it must not cause pain at any time. As the foot relaxes under this treatment, slow carefully controlled movement in all directions will help to indicate whether the spasm has been released. It may be necessary to strap the foot with adhesive tape or to bandage it with an ace® bandage. If absolute rest is necessary, it should be arranged. This program should be continued until the immediate pain is controlled. Then further studies can be made as indicated and a plan for control of the disorder can be made.

Physical treatment is required for the reduction of muscular contractures. When pes cavus is noted in the baby, casts should correct the shortening in both the heel cords and the plantar tissues. If no treatment is started until childhood, then a special program of stretching should be prescribed before surgical treatment is considered. Casts may be used to start the improvement. Traction apparatus should be used. A block placed against the metatarsal heads and held by a pulley can be forced to stretch both plantar fascias and muscles and the achilles tendon. The counter traction is fixed.

About 50 or 60 pounds of force can be used over a period of thirty minutes and is a good start to a program of active stretching exercises. The best exercise for this is one in which a so-called fall-out position is assumed from a standing position. One knee is flexed and the opposite leg is extended backward so that the metatarsal heads rest on the floor. The patient then attempts to press the heel to the floor. This stretches both the plantar and gastrocnemius soleus muscles.

In most instances no other treatment is required. If this program fails, then operation is necessary, as the bones take on new shape with the constant pull of soft tissues.

Physical treatment is necessary in the mobilization of joints that have become limited in range secondary to various etiologic factors. Traumatic arthritis is frequent at the first metatarsophalangeal joint where there is faulty weight bearing as described earlier under metatarsal variations. There may be clawing hammer toes. Contractures of soft tissue may result from rheumatoid arthritis or from various types of paralysis. If pain is present, radiant heat, wet heat or paraffin may be used for twenty to thirty minutes, followed by massage and stretching. The massage can be deep stroking, kneading or friction, but it must not be painful. Mobilization of joints is essential to stop pain and to permit a normal gait. There must be free anteroposterior motion at the tibioastragaloid joint. The subastragaloid is very important, as weight of the body is distributed through it to the os calcis. Limitation here makes walking on irregular surfaces difficult, since its motion is lateralward. Stretching is done by grasping the os calcis and moving it laterally on the astragalus, which is fixed by the operator's other hand. The ligaments between the tarsal bones should be stretched. Good play should be obtained at the tarsometatarsal junction by grasping the metatarsals, stretching longitudinally and moving them laterally, and in a rotary direction. Hallux rigidus can occur if free mobility is not obtained at the first metatarsophalangeal joint. The toe is grasped and moved lateralward on the fixed metatarsal; then, with traction applied, the toe is dorsiflexed. This movement is particularly important, as the phalanx is sharply dorsiflexed on the metatarsal in normal walking. If a good range of painless movement cannot be obtained because of the arthritic changes in the joint, then surgical arthroplasty or fixation may be necessary.

Semimobile joints are routinely painful. Joints must regain their normal range or they should be fixed either surgically or by external means to prevent the strain that is constantly occurring in a joint that is only partially mobile.

Physical treatment is used to reeducate muscles to normal movement after deformities have been corrected. A short heel cord will throw a foot into pronation. When this has been relieved, shoes are fitted to hold the foot in correct position, but it is often necessary to stimulate the tibialis anticus and posticus actively to lift the medial side of the foot in walking. The peroneus tertius may also need retraining before the patient will dorsiflex his foot and reach correctly with the heel as is required in normal locomotion. Activity of the dorsiflexors of the toes must be controlled, as they are overactive when contractures have been present which prevent the normal dorsiflexion of the ankle by the tibialis anticus and peroneus tertius.

CONCLUSIONS

The proper treatment of the common disorders of the feet rests on a careful analysis of the etiologic factors. If the condition can be recognized in infancy, prevention or correction may be obtained. In the older child or adult, treatment depends on: (1) the choice of shoes to fit the patient's feet, (2) relief of severe pain, (3) obtaining complete range of motion of joints through elongation of any soft tissues that may be limited by whatever cause and (4) education to a correct gait.

PHYSICAL TREATMENT OF PERIPHERAL VASCULAR DISEASE

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In no other set of conditions is a proper balance between medical, surgical and physical methods of treatment more essential than in diseases of the peripheral circulatory systems. Rational therapy must be based first of all on a thorough understanding of their anatomy and physiology, both normal and morbid; secondly, on accurate methods of evaluation, and, finally, on a thorough knowledge of all methods of treatment and of judgment and discrimination in their application. One of the least satisfactory aspects is the status of tests and measurements. The most useful seem to be the simple clinical methods of inspection, palpation and auscultation. New and better ones are urgently needed.

An attempt is made in this presentation to emphasize the most widely held views of authorities in the field of vascular disease. Perhaps the best, although not very recent, review of the subject is that of Allen and Kvale.[1] Van Dellen and his co-workers should also be consulted.[2] Standard texts include the views of Abramson,[3] Homans,[4] Collens and Wilensky,[5] Allen, Barker and Hines[6] and Kramer.[7] One of the best works is by Wright.[8] Recent advances in physiology and in tests and measurements can be found in appropriate sections of the "Annual Review of Physiology"[9] and in a brief monograph by Richards.[10] A general bibliography of physical methods is available in the serial volumes of the "Yearbook of Physical Medicine."[11]

Angiologic conditions in which physical methods are inappropriate or play a minor role are omitted from the discussion.

DISEASES OF LYMPH VESSELS

Hot fomentations and elevation are standard treatment in lymphangitis and lymphadenitis of both the upper and lower extremities, whether incited by puncture wounds or by fungous infections. Luminous heat and hot tub baths may be used. Lymphedema, whether congenital (Milroy's disease) or secondary to trauma, tumor or infection, should be treated by elevation of the extremity, centripetal massage and tight bandaging. Neglect results in fibrosis (elephantiasis), which can be treated only surgically.

DISEASES OF VEINS

Stagnation of venous blood in the calves or perivesical plexus is at least one factor in the production of phlebothrombosis and phleboembolism. Once these grave conditions have developed, physical treatment is contraindicated. The simplest and most effective prophylaxis is properly carried out bed exercises. It is highly desirable that all persons treated with prolonged bed rest perform such exercises, especially in pelvic postoperative states and in cardiac decompensation. Dorsiflexion, toe fanning and curling, inversion, eversion and isometric plantar flexion against a footboard should be performed in ten to thirty repetitions, at least three times daily.

Once frank thrombophlebitis has developed the danger of embolism is regarded as past, although not necessarily in the opposite, apparently uninvolved, leg. In thrombophlebitis the leg should be elevated 15 cm. (6 in.) above the heart level. The foot of the bed may be placed on blocks. Rest is essential. Deep breathing, straining at stool and elaborate physical examination of the chest should be avoided as long as there is any hazard of embolism. Many types of heat may be used. Hot packs are probably best. Massage is contraindicated.

Thrombophlebitis migrans requires only symptomatic treatment. Care should be exercised in the use of heat on the acral parts, since this type of phlebitis is often symptomatic of underlying thromboangiitis obliterans.

In varicose elephantiasis and ulceration the underlying defect is tissue anoxia from chronically increased venous pressure. If surgical correction is not feasible, permanent external support in the form of elastic stockings or bandages is required. Localized increase of pressure over ulcers or split grafts may be achieved by binding on foam rubber sponges. Those with much experience favor pure gum rubber bandages 3 in. (8 cm.) wide and 15 feet (457 cm.) long. Acetyl-beta-methylcholine chloride (mecholyl chloride®) may be administered by ion transfer in the treatment of ulcers

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From Washington University School of Medicine, St. Louis.

Read in a panel discussion on Physical Medicine in General Practice in the Session on Physical Medicine before the Section on Miscellaneous Topics at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

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[7] Kramer, D. W.: Peripheral Vascular Diseases, Philadelphia, F. A. Davis Company, 1948.

[8] Wright, I. S.: Vascular Diseases in Clinical Practice, Chicago, The Year Book Publishers, Inc., 1948.

[9] Luck, J. M.: Annual Review of Physiology, Stanford, Calif., Annual Reviews, Inc., 1947.

[10] Richards, R. L.: The Peripheral Circulation in Health and Disease, Baltimore, Williams & Wilkins Company, 1946.

[11] Kovacs, R.: The Yearbook of Physical Medicine, Chicago, The Year Book Publishers, Inc., 1947.

to produce hyperemia, stimulate granulations and speed epithelization. Intermittent venous occlusion has been used successfully.

DISEASES OF LARGER ARTERIES

Functional diseases of the larger arteries include cervical rib and scalenus syndrome, hyperabduction syndrome of Wright[12] and costoclavicular syndrome of Falconer and Weddell.[13] Many patients in this group can be successfully treated by postural exercises alone. Others will require surgical cure. Special arrangement of pillows at night, luminous heat, head traction and massage may be required. In Wright's syndrome it is necessary only to bind the wrists loosely to the foot of the bed at night. Those doing overhead painting or lubricating may need to shift to a different job. In costoclavicular syndrome (first noticed in soldiers wearing heavy packs) the upper trapezius and levator scapulae should be strengthened by appropriate therapeutic exercises.

Structural disorders of the larger arteries include rupture of syphilitic or arteriosclerotic aneurysms, medionecrotic dissections (resulting in weird trains of neurologic and vascular symptoms), Volkmann's ischemia (initially functional), thrombosis of intimal plaques, traumatic arteriovenous shunts and gross emboli (usually from thrombi in a fibrillating left auricular appendage or infarcted ventricular wall). Many of these conditions are brusquely fatal. Thrombosis of the aorta at its bifurcation and extensive dissecting aneurysms are not incompatible with survival, although the prognosis is necessarily limited. Development of collateral channels, either via the vasa vasorum or in small external laterals, and control of local arterial spasm are crucial points in treatment.

Spasm must be treated by reactive hyperemia, either caloric (from warming unaffected extremities) or venous (intermittent occlusion), combined with ganglionic blocking agents and perhaps intra-arterial drugs. The greatest care must be exercised to maintain the occluded extremity at a temperature favorable to circulation through collaterals and yet not so high that the metabolic rate outruns the oxygen supply or that local burns occur because of poor heat dissipation in the tissues.

Advancing gangrene, including gas gangrene, may be halted in a desperate crisis by packing the unsalvageable extremity in ice while an elderly or debilitated patient can be suitably prepared by antibiotics, transfusions, insulin and the like for an amputation at leisure. Most surgeons are opposed to the use of local cold anesthesia for the amputation. If vascular disease is present in the other limbs, refrigeration should not be used, since it causes diffuse reflex vasoconstriction.

DISEASES OF SMALL ARTERIES AND ARTERIOLES

Functional diseases and syndromes of obscure causation include Raynaud's symptoms and Raynaud's disease, acrocyanosis, livedo reticularis, reflex dystrophies and atrophies, erythromelalgia (or erythermalgia) and possibly causalgia. Raynaud's symptoms are usually so mild as to require no special treatment. In Raynaud's disease the main point is avoidance of cold. Special heaters may be used for gloved hands and feet only for the prevention of attacks; the patient must be warned of the danger of burns in the use of such devices during attacks. Acetyl-beta-methylcholine chloride iontophoresis has proved useful in management, especially when there is ulceration. Sympathectomy does not cure. Traumatic vasospastic disease (miner's hand, pneumatic hammer disease) may require a change of occupation. Acrocyanosis and livedo reticularis are usually mild disorders requiring no special treatment. Exceptionally, late arteriolar proliferative changes occur similar to those seen in Raynaud's disease and pernio. Treatment of reflex or Sudeck's atrophy (secondary to trauma) is unsatisfactory. Shoulder-hand syndrome may belong to this group. Vigorous hydrotherapy, massage and therapeutic exercise should be administered for an extended period. Results are only fair. Erythromelalgia, the semiologic opposite of Raynaud's disease, requires the opposite prophylaxis—avoidance of heat. Acrodynia has some similarities.

Raynaud phenomena may occur in leukemia, rheumatoid arthritis and the "group" or diffuse collagen diseases: lupus erythematosus disseminatus, scleroderma, dermatomyositis and periarteritis nodosa. The last named, when the cause of neuritic or joint pain, may be treated by whirlpool baths. Heat should be used with caution when the cutaneous sensory nerves are affected. Insolation and ultraviolet rays should never be used in lupus erythematosus because of the danger of provoking fatal dissemination. In scleroderma localized to the hands and forearms, paraffin baths followed by vigorous massage and acetyl-beta-methylcholine chloride iontophoresis may be tried (0.1 to 1.0 per cent solution; 15 milliamperes for thirty minutes). In the generalized form of the disease no treatment is of avail. It may affect the face, mouth, esophagus and even the heart.

Structural diseases of the small arteries include most of the important groups of arterial insufficiency seen clinically. The classification by size is somewhat artificial in the case of thromboangiitis obliterans and arteriosclerosis, veins being likewise affected in the former instance and large as well as small vessels in both. Nevertheless it is insufficiency of the small vessels that eventually leads to claudication, muscle infarction and gangrene. It is here that physical agents have their greatest utility in treatment.

Included in this group are congenital and acquired neurovascular gangrene (spina bifida and medullary dysraphism, mal perforans, leprous amputations and Morvan's disease). Some of these conditions are mentioned because it is recognized that sensory denervation will not alone lead to progressive spontaneous amputations and gangrene.

Whatever the pathologic condition, the objectives in the treatment of small artery insufficiency are similar. As a preliminary step, especially in thromboangiitis obliterans, the physician should refuse to continue treatment of any patient unable finally and completely to stop smoking. Denicotinized cigarettes cannot be permitted. First steps are directed at emergency treatment for gangrene or threatened gangrene; second, the control of pain, and third, the stimulation of collateral circulation. Included in all of these are measures to interrupt all vasoconstrictor tone in the extremity.

Meticulous cleanliness and the avoidance of thermal, chemical and mechanical trauma are the first requirement. Care in the trimming of toe nails and corns and in the prevention of fungous dermatoses goes without saying. The extremity is lowered 15 cm. below the heart level. A cradle with protected carbon bulbs providing an ambient temperature of 31 to 35 C. (88 to 95 F.) will produce the right amount of vasodilatation

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12. Wright, I. S.: The Neurovascular Syndrome Produced by Hyperabduction of the Arms, Am. Heart J. 29: 1, 1945.

13. Falconer, M. A., and Weddell, G.: Costoclavicular Compression of the Subclavian Artery and Vein, Lancet 2: 539, 1943.

without dangerously raising the tissue temperature. Patented thermostatic devices are safe and effective. Even more complete relaxation of the arteriolar walls can be procured by indirect heating of one or more normal extremities. Diathermy, luminous heat, paraffin and water baths and electrically heated sleeves have been employed. In diffuse peripheral vascular disease the diathermy application may be safely made over the pelvic area. Such treatment can be used only a limited number of hours per day, because it is somewhat exhausting. Whirlpool baths may be used. Contrast baths are physiologically unsound.

Despite their somewhat shaky physiologic background, the Buerger-Allen exercises have one excellent theoretical basis: They may aid in the establishment of collaterals by tissue demands short of claudication. An analogy can be drawn with the heart. Blumgart and Schlesinger have beautifully demonstrated how anastomoses may form between various supposed end arteries, provided that occlusion takes place slowly enough. Without the stimulus of continuous activity of the heart muscle, it is doubtful that these would form. Similarly, leg muscles which are allowed to lie completely flaccid are possibly just as undesirably treated as those overused.

The patient is provided with a printed instruction sheet with diagrams of the various positions and with a time schedule individually determined for him by noting how long it takes for pallor to develop on elevation and rubor on dependency. During dependency exercises similar to those described under prophylaxis of thromboembolism are carried out. The exercises should be carried out for one hour, three times daily.

Passive exercises include suction-boot apparatus, intermittent venous occlusion and the Sanders oscillating bed. Of these, strangely enough, the one with the best background of physiologic experimentation (Herrmann, Landis and Hitzrot) has fallen into the greatest disuse. The objections to the alternating suction and pressure boot are largely practical: its effect is too transient, it is bulky and it is irritating to the skin. The intermittent venous occlusion apparatus (Collens and Wilensky), on the other hand, is small and portable, not greatly expensive, not irritating to the user and can be operated for prolonged periods of time without attention and without danger. The senile, petulant or confused patient may not tolerate it, however, any better than he does his in-lying catheter. Convincing physiologic experimentation on the effect of this apparatus is still lacking, although some apparently well carried out clinical studies have been made by its sponsors which sound convincing. Some writers feel that in order to be effective it must be used in the patient's home daily (one or two hours) for six months or more and that its predominant effect is the establishment of collaterals.

The oscillating bed is expensive. It can be used to some extent with uncooperative patients. Those experienced in its use are enthusiastic.

DISEASES OF THE SMALLEST BLOOD VESSELS

The intoxications, some affecting also the arterioles, include ergotism in its various forms, procaine-epinephrine gangrene, nicotine, certain bacterial and virus toxins, dicumarol® and a wide variety of chemicals. Some of these, such as the phenol group, depend on concentration. Others depend on idiosyncrasy. In those causing vasospasm treatment discussed previously is applicable.

Certain blood dyscrasias result in capillary embolism or thrombosis. Erythremia and sickle cell anemia are examples. Cutaneous ulcerations may be produced, especially about the shins. Similar in appearance are the ischemic ulcers sometimes seen in hypertension. After attempt at correction of the basic disturbance, treatment is symptomatic and expectant. For ulcers hydrotherapy and ion transfer of either histamine or acetyl-beta-methylcholine chloride are useful. Decubiti are ischemic ulcers produced by compression of a thin tissue between a mattress or cast and a bony prominence. Ion transfer and whirlpool treatment are also important here.

The vast group of the purpuras is not considered, since the symptom itself seldom requires treatment. Joint involvement may require heat, special supports and mild exercises. Air thrombi (bends) form in too rapid decompression of deep sea divers, caisson workers and aviators. The treatment is rapid recompression in a special chamber and then slow decompression.

Histamine reactions result in certain persons from physical agents such as mechanical trauma, cold and (rarely) heat. Sunlight may also provoke them (urticaria solaris). The only prophylaxis consists in the avoidance of the harmful temperatures. In cold urticaria, desensitization by means of daily baths, each 1 degree colder than the previous, may be attempted.

Acute and chronic pernio (chilblains) are poorly understood disorders associated with exposure to cold. I observed several instances in the winter of 1944 among Italian civilians living in unheated houses. Treatment of the ulcerated chronic type is highly unsatisfactory. Measures discussed under blood dyscrasias may be tried.

Some authorities have expressed the belief that the pathologicophysiologic aspects of frostbite and of trench or immersion foot are identical and others that they are dissimilar.[14] Until this debate is settled, the treatment of these conditions remains somewhat tentative. It is agreed, however, that in no instance should the involved part (in the acute stage) be either too rapidly warmed or kept too cold. The traditional rubbing with snow is bad on two counts: first, the use of snow or ice may extend the thermal damage already begun; second, even the lightest massage may cause breakdown and ulceration, admitting infectious agents to tissues with a severly lowered immunologic barrier. Warming the part by contact with another person is acceptable, but the use of additional heat is not to be considered. The extremity should be brought gradually to room temperature (20 to 22 C.). Walking must be avoided in the early stages. Slight elevation is desirable to reduce any edema (particularly frequent in immersion foot). No constricting clothing of any sort may be permitted about the extremity. Appropriate drug therapy will, of course, be carried out concurrently. Gangrene should be treated with extreme conservatism, allowing demarcation to occur where it will. Many apparently hopeless situations will thereby be saved. Severe paresthesias, pain and paralysis of the intrinsic musculature attest to the degree of nerve involvement. In immersion syndrome extreme hyperemia and bounding pulses are common. Elevated skin temperatures and burning pain may require cooling by an electric fan or rarely even by brief packing in insulated ice containers. This phase is succeeded by atrophy, reduced blood flow and lowered skin temperature and is treated oppositely. Stimulation by ion transfer, reflex hyperemia, alcohol ingestion and typhoid vaccine is now appropriate.

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[14] Lange, K.; Weiner, D., and Boyd, L. J.: The Functional Pathology of Experimental Immersion Foot, Am. Heart J. 35: 238, 1948.

In the chronic stage invalidism can be needlessly prolonged by neglecting early bicycling and walking instruction. Dogged insistence on these points and on exercises for the intrinsic foot muscles will prevent the severely disabling degrees of bone atrophy and ligamentous relaxation which result from inactivity. Paresthesias are stubborn. They can be helped by hydrotherapy and massage. For the hands, suitable shop and occupational therapy should be prescribed for recovery of joint motion (especially of the phalanges), work tolerance and skill. For the feet bicycle jig saws, treadle looms and other appropriate apparatus may be used. After loss of a limb or a part, training in a new vocation may be necessary. Throughout this discussion it is assumed that patients hospitalized for weeks or months, and therefore consumed with boredom, should be provided with diversional and morale occupational therapy.

Tumors of the minute blood vessels which may be treated with physical agents include spider nevi and hereditary hemorrhagic telangiectasia (electrodesiccation) and hemangiomas of the newborn (solid carbon dioxide). In the latter one should wait for spontaneous involution, which often occurs, before intervening. Pigmented nevi, especially if enlarging, should never be treated by other than wide surgical excision.

CONCLUSION

It should be emphasized that in the physical treatment of vascular disease good judgment is more important than elaborate equipment. Ingenious improvisations, of which one saw so much during the late war, often serve well. One must avoid placing too much responsibility on the therapist, who, unless provided with a complete, thoughtful and detailed prescription, tends to fall into a routine rut. If the physician is vague about the objective of his treatment and imprecise in ordering its details, he can scarcely hope that the therapist will be any less vague in its execution. If he fails to observe that the patient has loss of pain and temperature perception, he should not blame the therapist for producing a diathermy burn. On the other hand, he cannot personally check every phase of the treatment. His only protection is to insist that the therapist be registered and a graduate of an accredited school.

ABSTRACT OF DISCUSSION

ON PAPERS BY DR. FRANCES BAKER, DR. FREDERIC J. KOTTKE, DR. ROBERT L. BENNETT AND DR. SEDGWICK MEAD

Question: What physical treatment can best be used at home in treatment for painful weak feet?

Dr. Frances Baker, San Francisco: One would want to know why the foot is painful or why it is weak. If a foot is weak it must have been held in a fixed position for a long time by some type of rigid support, or it must have ligaments that are too long. For treatment at home hot packs can be used to relieve the pain. Ice water may give more relief and will help to make the skin firm. It is important that the patient wear the shoes which have been prescribed. The patient must rest certain periods of each day. It may be necessary to refrain from weight bearing for a few days, until the acute pain subsides. Exercises are given to strengthen weak muscles and to train for the corrected position of the foot. Stretching may be necessary.

Question: What percentage of patients with flatfoot are asymptomatic?

Dr. Baker: That is a difficult question for me to answer. I have tried through various school examinations and so forth to see how many patients with flatfoot are asymptomatic. There are differen types of flatfoot. The rigid flatfoot is symptomatic and difficult to treat with any plan. Rigid flatfoot has only about 1 per cent frequency. The flexible foot is one in which the ligaments are long. It is of low incidence also. The frequent causes for flatfoot are shortened heel cord, metatarsus varus or shortened first metatarsal. The foot is always strong, if the shoe is fitted to the foot. The pronation does not cause pain unless the shoe has caused malalinement.

Question: Is the shortening of the achilles tendon the commonest cause of pronation of the feet?

Dr. Baker: I think that it is certainly a very common cause. The shortened achilles tendon can be observed after the age of 6. It is not primarily due to the wearing of high-heeled shoes. It is most commonly seen in children, beginning at about the seventh year, and from then on it will cause definite pronation. Stretching of gastrocnemius-soleus muscle and retraining of the tibialis muscle will correct it.

Question: What is the most satisfactory method for stretching calf muscles and achilles tendons?

Dr. Baker: A relatively mild contracture can be cared for by the fall-out position which I described. The patient places his hands on the wall and falls forward toward the wall, flexing the elbows while keeping the heels on the floor. For heavy stretching, when one wants to exert extra force, one may apply traction and countertraction. With pulleys, traction of 40 to 60 pounds can be continued for thirty to forty minutes. This is an excellent method for treating a patient in a department of physical medicine. Rarely do casts have to be used.

Question: What types of supports do you recommend for pronated feet?

Dr. Baker: After exercises and shoes have been prescribed, one can use felt or rubber to lift the long arch and support the shortened first metatarsal and lift the second metatarsal head. A Thomas heel with a medial lift of ⅛ to ¼ inch (0.32 to 0.64 cm.) can be prescribed.

Question: Does the use of rigid arch supports for prolonged periods weaken the muscles of the feet, so that muscle strengthening exercises are necessary?

Dr. Baker: If the foot can be placed in a shoe which is correctly alined, then the muscles frequently regain their power without specific strengthening exercises. If the support has been applied because of pronounced hypermobility, it is difficult to reduce this even with heavy resistance exercises, but these should be prescribed.

Question: How effective is the use of metatarsal bars in relieving metatarsalgia?

Dr. Baker: Metatarsal bars can be very satisfactory. One should define metatarsalgia. I suppose that pain in the region of the metatarsal heads with calluses under them is meant. If so, then the condition is treated as previously indicated. If the cause of the pain is found, one can correct the foot. There is metatarsalgia known as Morton's toe. Morton's toe is due to the formation of a neuroma on the branch of the sensory nerve between the third and fourth toes. Surgical treatment is necessary.

Question: What physical treatment should be used in conjunction with metatarsalgia?

Dr. Baker: If the foot is painful, then it is necessary to relieve the pain and regain flexibility. It may be necessary to use heat, massage and rest to relieve the spasm before flexibility can be obtained.

Question: What is the responsibility of the physiatrist in the treatment of corns, warts and calluses as causes of foot pain?

Dr. Baker: Of course, again, except for warts, these are not the cause of foot pain. They are the result. A wart should be referred to a dermatologist. It is not the business of physiatrists to treat warts. There are various types of warts, and there are too many mistakes made with regard to warts. Corns and calluses will gradually disappear if the feet are treated as previously described. If the physiatrist can be properly interested in the problem of foot pain, then he is in a particularly happy position to care for the abnormalities.

QUESTION: What can be done to relieve the pain and disability due to hypertrophic arthritis of the spine?

DR. FREDERIC KOTTKE, Minneapolis: Heat gives temporary relief from pain in osteoarthritis of the spine. Most of the patients are stiff from prolonged immobilization because of pain. Moderate stretching exercises help these patients to become more limber and at the same time reduces pain. Unfortunately, these patients require prolonged treatment and the results are palliative. Heat, massage and moderate activity will give relief.

QUESTION: Is low back pain usually due to herniated disks?

DR. KOTTKE: Low back pain has been estimated to be due to degenerated or herniated intervertebral disks in 2 per cent to 100 per cent of cases, depending on who has formed the estimate. There are two types of disk lesions. One is the classic prolapsed disk with compression of a nerve root, pain in the back radiating down the leg, sciatic tenderness and atrophy and weakness of the muscles. This may be seen in any degree of severity. The other is degeneration of the intervertebral disk without herniation and compression of a nerve root. In this lesion the pain and tenderness are localized to the back, in the immediate vicinity of the disk. There may be no roentgenographic evidence of disk injury, or the intervertebral space may appear narrowed. There is no radiation of pain into the leg. In the absence of objective observations a diagnosis of a degenerated disk is presumptive and remains to be proved. Chronic backaches which are placed in this category frequently respond to treatment that would not logically be prescribed for a degenerated disk. Therefore, further proof is needed that this type of backache is due to a degenerated disk. I think, as a conservative estimate, that 10 to 20 per cent of low back pain may be related to herniation or degeneration of the intervertebral disks.

QUESTION: Is there any value in applying plaster casts or adhesives to the back in acute lumbar strain?

DR. KOTTKE: When a patient has such acute back pain that he will not tolerate any activity, heat and gentle massage may be used. If the pain is exquisite, and he will not allow manipulation of any sort, immobilization by strapping for a few days allows the acute pain to subside. The patient will allow one then to begin mobilizing activity. Such cases respond well to strapping. There is a larger number of cases in which it is not necessary for one to wait before beginning mobilization after heat analgesia. One may begin immediately with mild activity and in that way gain a few days in the treatment of the patient.

QUESTION: What is the relationship of the fibrositic nodule to the cause of back pain?

DR. KOTTKE: In some cases of low back pain one can find nodules that would be classified as fibrositic nodules. In some of these cases, there is no question that this so-called fibrositic nodule is actually a herniation of fat tissue through the lumbodorsal fascia. Copeman has shown in a careful study that these tender fibrositic nodules frequently are located where fat is distributed beneath the lumbodorsal fascia and in some cases it has been possible to find fat nodules herniated through the fascia and remove them surgically. Relief has been obtained by the excision of the fat nodule in these cases. Sometimes one obtains relief by injecting procaine hydrochloride into the areas of the nodule. In a certain proportion of cases, fibrotic nodules undoubtedly cause low back pain.

QUESTION: How many weeks or months should physical therapy be continued in poliomyelitis?

DR. ROBERT BENNETT, Warm Springs, Ga.: To answer that completely, one would have to write a book. It depends on the amount of involvement and the age of the patient. Anyone who has treated poliomyelitis extensively realizes that there is a great difference between the treatment of the adult patient and the treatment of the child. In the child, there must be some type of physical therapy for ten or fifteen years. One might best say that within six months the anatomic pattern of neuromuscular units is left; by the end of six months the inflammation in the nervous system has quieted down and there are available certain anatomic units. However, it might go on for years. I think that it is foolish to say that one should continue physical therapy for six months or eighteen months or any number of years. It depends on the patient. Many patients who have practically normal recovery of muscle function have residual tightness in the band and back or in the heel, which, if not stretched routinely, continuously for years, particularly in children until full growth has been established, causes trouble. With respect to how long muscle reeducation should go on, here again the child differs from the adult. In the adult, I would say moderate and specific muscle reeducation should be continued from fourteen to eighteen months. In the child who is learning habit patterns, muscle gait training should go on for years.

QUESTION: Should hot packs be used routinely in all cases of early poliomyelitis?

DR. BENNETT: Nothing should be used routinely in poliomyelitis. Hot packs have a definite purpose. They are part of a treatment to help relieve pain and release tightness.

QUESTION: How long should hot packs be used?

DR. BENNETT: Hot packs should be used until their usefulness in relieving pain and releasing tightness as part of the treatment is gone. If hot packs are needed to help relieve pain and release tightness, one should use them. There are other aspects of treatment that are controversial, for example, the use of curare as an adjunct in relation to muscle stretching. There is little doubt that the intelligent use of curare is indicated in some cases. I have used little of it because I have not found it necessary. By means of a number of other instruments and agents, I can achieve the same result in releasing spasm and tightness and reestablishing mobility. In certain selected cases and in skilled hands, curare can be an aid.

QUESTION: Can one diagnose acute poliomyelitis by electromyographic observations?

DR. BENNETT: I do not believe in the present status of knowledge that one can diagnose any disease entirely by electromyographic observations.

QUESTION: Is there any clinical and physiologic improvement following intermittent occlusion? What is the value of intermittent application of positive or negative pressure or both in the management of so-called varicose ulcers?

DR. SEDGWICK MEAD, St. Louis: The primary defect in varicose ulcers is increased venous pressure. If that cannot be cured by surgical means, then some type of method of increasing the tissue pressure above the venous pressure must be resorted to. It is difficult to see how intermittent venous occlusion could accomplish that except in a transitory way. Nevertheless, there are some clinical reports of rather remarkable healing of varicose ulcers with the use of intermittent venous occlusion. With respect to anticoagulants, their use in a patient who one suspects has a thrombus floating in the venous stream which may be ready to break off at any moment, it is agreed by all that anticoagulants will not dissolve the thrombus. Any type of active exercises used after the introduction of anticoagulant therapy must be begun with definite reservations about time. No one is agreed yet just how long it is safe to wait before such active exercises are begun. In general it is thought that when active symptoms are present, such as swelling and pain, sufficient organization of the thrombus to the vein wall has occurred so that embolism is no longer probable. There is a question here about peripheral vascular disease in diabetes. In general, what was said about arterial disease is applicable here, and, of course, it depends on how severe the disease is. There are two additional complicating factors in diabetes. Often a type of neuritic pain, which is poorly understood, may result from neuropathy in the spinal cord rather than in the peripheral nerves. The patient may have, in addition to that, loss of vibratory and position sense and perhaps a peripheral distribution of loss of sense of pain and temperature, which may complicate his treatment considerably. It may lead to burns if great care is not exercised.

QUESTION: Why are "contrast baths" physiologically unsound in peripheral vascular disease?

DR. MEAD: I know of no good physiologic work on that point. Nevertheless, the consensus seems to be that following contrast baths the skin temperature is lowered. It is assumed, therefore, that there is a concurrent vascular constriction. Authorities are nearly unanimous in their condemnation of contrast baths in the treatment of occlusive arterial disease.

SELECTION OF THERAPY FOR INDIVIDUAL PATIENTS WITH THYROTOXICOSIS

ROBERT H. WILLIAMS, M.D.
Seattle

The obscurity of the causation of thyrotoxicosis and the lack of completely satisfactory results with any type of therapy that has been prescribed for it have promoted continuous investigations, involving many different approaches. Some of the many types of treatment that have been, or are being, investigated are listed in table 1. The rationale of these therapies is based on the hypothesis that the central nervous system plays an important role in regulating the production and release of thyrotropin, which, in turn, governs the production of thyroid hormone; since too much of the latter causes thyrotoxicosis, anything, no matter where its action is centered, which tends to decrease the production of the thyroid hormone or antagonize its action will cause a remissioin in thyrotoxicosis.

During approximately the last five years I have investigated various of these types of therapy in 441 patients with thyrotoxicosis. Some of the specific compounds tested are listed in table 2. I also have observed the validity of using some of these compounds in conjunction with iodine, thyroidectomy and radioiodine. However, in this paper I am comparing chiefly the results obtained in the treatment of thyrotoxicosis (*a*) by means of subtotal thyroidectomy, (*b*) with prolonged administration of thiouracil[1] and (*c*) with radioiodine. In comparing these forms of therapy, I am utilizing chiefly my own experience, since an opportunity was afforded for studying, firsthand, a cross section of patients of the same general type under similar environment. Moreover, advantage was taken of the opportunity of comparing several types of therapy in the same subject. Finally, earnest efforts were made to follow the progress of the patients, not only during, but after the completion of, the treatment. Advantage in this respect was afforded by the fact that most of the patients lived in or close to Boston and could readily be given appointments for repeated examinations. The least cooperative ones were usually induced to return for examination following visits to their homes by social service workers or by me. However, 26 of the 441 patients disappeared from prolonged observation. The total number of patients who received the three major types of therapy are listed in table 3.

In addition to these major groups, there is a miscellaneous group of patients. They do not represent subjects that have fallen out of the three main classes; such patients are discussed under their respective headings. Instead, this miscellaneous group consists chiefly either of patients who have recently begun treatment or of those who served for clinical bioassay purposes.[2]

RESULTS OF THERAPY

Subtotal Thyroidectomy.—The preoperative and postoperative care given in this clinic and the courses of the patients during these intervals have been described previously,[3] along with some of the follow-up results. It is important to emphasize that most of the thyroidectomies were performed in three different hospitals and by four different surgeons whose main surgical specialty was in the thyroid field. The results obtained in 195 patients, almost all of whom were subjected to thyroidectomy previous to two years ago, are shown in table 4. The 2 deaths were previously described[4]; each occurred within twenty-four hours after thyroidectomy. One death was due to pulmonary embolism (?) and the other to hyperthyroidism.

TABLE 1.—*Types of Therapy in Use for Thyrotoxicosis*

General Basis for Therapy	Specific Therapy
A. Decreased neurogenic stimulation of thyrotropin production	A. Psychotherapy
B. Decreased capacity for thyrotropin production	B. Irradiation of pituitary
C. Inactivation of thyrotropin	C. Iodine
D. Decreased capacity for thyroxin production	D.
1. Decreased thyroid size	1. Thyroidectomy Irradiation { Roentgen Radioiodine
2. Biochemical antagonism	2. Thiourea derivatives Aminobenzenes Thiocyanates
E. Antagonism of thyroxin	E. Thyroxin homologues Paraxanthine

Prolonged Treatment with Thiouracils.—A total of 119 patients[5] were treated for relatively long intervals with thiouracils. Propylthiouracil alone was used for 8 patients and thiouracil was used, alone or with propylthiouracil, in the others. The characteristics of most of the conditions treated, the program of therapy and the early results have been described previously.[6] The same general plan of therapy was used with propylthiouracil as with thiouracil. It was the policy to treat most of the patients for ten to twelve months before discontinuing therapy. A few patients were treated continuously for as long as eighteen months. Thirty-five patients were treated for a total of more than one year and 13 for more than two years.

The patients treated for prolonged intervals do not represent a selected group except so far as 10 patients were eliminated because of the large size of the thyroid gland and a few were eliminated because of the toxic reactions to the compounds. The experiences of my associates and me with toxic reactions to thiouracil

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Read before the Section on Internal Medicine at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard), Boston City Hospital, and the Department of Medicine, Harvard Medical School, Boston.

[1] Throughout this paper the word "thiouracil," unless otherwise clarified, is used to include not only thiouracil but also its derivatives. However, in most instances when it is used in this general way, it refers to thiouracil itself and/or propylthiouracil.

[2] Williams, R. H.: Antithyroid Drugs: III. Comparison of Results of Newer Forms of Treatment of Thyrotoxicosis, Arch. Int. Med. **80:** 11-36 (July) 1947.

[3] Williams, R. H., and Clute, H. M.: Thiouracil in the Treatment of Thyrotoxicosis, J. A. M. A. **128:** 65-69 (May 12) 1945.

[4] Williams.[2] Williams and Clute.[3]

[5] Four patients covered in a previous report (Evaluation of Newer Methods of Treatment of Thyrotoxicosis, *West. J. Surg.* **56:** 72-76 [Feb.] 1948) are not included here because they were used for the bioassay of several thiouracils and received insufficient dosage.

[6] Williams, R. H.: Thiouracil Treatment of Thyrotoxicosis. I. The Results of Prolonged Treatment, J. Clin. Endrocrinol. **6:** 1-22 (Jan.) 1946.

have been reported previously.[7] In using propylthiouracil for intervals of a few weeks in 205 patients, we encountered significant toxic reactions in only 2 subjects, fever in one and fever with leukopenia in the other.

Of the 119 patients, 57 had a remission which has been sustained after cessation of treatment for a relatively long period, as indicated in table 5. These patients are all well now. Five of the 57 persons were men; 4 of the 57 had nodular goiters. Factors which tended to favor remissions were female sex, small goiter, mild thyrotoxicosis and age above 30 years.

Patients treated for intervals of from eight to fifteen months were more prone to have sustained remissions than were those treated for only a few months. A few patients who had a relapse when treatment was stopped experienced a sustained remission after another ten month course of therapy was given. That some patients tend to be refractory to this type of therapy, even after long intervals, is indicated by the fact that of 13 persons treated for more than two years only 1 had a sustained remission after cessation of therapy. The longer the subjects have remained in a state of euthyroidism without therapy the greater are their chances of remaining in this condition. Although 5 patients had a reappearance of thyrotoxicity after remaining free of it for as long as one year,[8] none has had a relapse after remaining well for more than two years without treatment.

TABLE 2.—*Specific Compounds Used in Treatment of Thyrotoxicosis*

- Thioureas
  - Thiourea
  - Diethylthiourea
  - Tetramethylthiourea
  - Orthophenylene thiourea
- Miscellaneous
  - Diethyl thiobarbituric acid
  - "Thiobarbital"
  - Aminothiazole
  - *p*-aminobenzoic acid
- Iodinated Compounds
  - 5-iodothiouracil
  - 5-iodo-6-methylthiouracil
  - 3, 5-diiodo-*p*-aminobenzoic acid
  - Ethyl di-iodobrassidate
- Thiopyrimidines
  - Thiouracils
    - Thiouracil
    - 6-methylthiouracil
    - 6-propylthiouracil
    - 6-cyclopropylthiouracil
    - 6-butylthiouracil
    - 6-isobutylthiouracil
  - Thiothymine
  - Thiocytosine
- Thyroxin Antagonists
  - Paraxanthine

TABLE 3.—*Patients Treated for Thyrotoxicosis with the Three Major Types of Therapy*

Type of Treatment	No. of Patients
Thiourea compounds or aminobenzenes	441
Thiouracils for prolonged intervals	119
Radioiodine	106
Thiourea compounds and thyroidectomy	195

Of the 57 patients who have remained in remission, there are only 5 in whom at present the thyroid gland is not smaller than it was at the beginning of the thiouracil treatment. The maximal increase in size of the gland in the 5 patients was 10 Gm. (table 6). In 6 patients the decrease in size of the gland was aided by roentgen therapy. However, even without this treatment in several persons, glands which were estimated to weigh from 40 to 60 Gm. decreased to about 20 Gm.[9]

Most of the 62 patients who did not experience sustained remissions were treated effectively by other measures, as indicated in table 7. There was less tendency for a decrease in the size of the thyroid gland in the 62 patients who did not experience a sustained remission to prolonged treatment than in the ones who did. Indeed, in a few patients experiencing relapse the gland became much larger. There has been nothing to suggest malignant growth in either group.

TABLE 4.—*Results of Subtotal Thyroidectomy in 195 Patients* *

Persistent or recurrent thyrotoxicity	15
Myxedema	4
Hypoparathyroidism	2
Paralysis of vocal cords	2
Death	2

* Each patient had thiouracil alone or with iodide before operation.

TABLE 5.—*Interval of Remission of 57 of 119 Patients Treated with Thiouracil*

Years	No. of Patients
1.5	6
2.0	11
2.5	6
3.0	6
3.5	18
4.0	7
4.5	3

Whereas I used thiouracil in most cases, I anticipate similar results with allied compounds when the latter are given in doses equivalent in antithyroid effect.

TABLE 6.—*Changes in Thyroid Size in 57 Patients in Remission Following Cessation of Thiouracil Treatment*

	Estimated Weight of Thyroid, Gm.	
No. of Patients	Pretreatment	Present
44	25 to 45	20 (normal)
9	45 to 65	25 to 35
1	60	60
1	60	50
1	130	80
1	550	60

TABLE 7.—*Outcome of 62 Cases Without Sustained Remissions*

Remission after radioiodine	28
Remission after thyroidectomy	22
Disappeared from observation	9
Receiving treatment now	3

Radioiodine.—Radioiodine was used in this clinic in the treatment of 106 patients with thyrotoxicosis. Six were treated only in the last three months and the results cannot be evaluated at present. Of the remaining 100, 21 had had a subtotal thyroidectomy and 40 had had thiouracil for more than eight months, although not in adequate doses in some cases. I^{131} was used in 97 patients and I^{130} in 3. The last 3 have been well for more than two years. Of the other 97 patients, only 5 have persistence of thyrotoxicity; 92 have been in remission for more than one month and 80 have had no reappearance of their disease during a period of more than four months. Myxedema developed in 3 patients and transient hypothyroidism in 13. A few subjects experienced a transient exacerbation in thyrotoxicity following radioiodine. In most of the 78 subjects with diffuse enlargement of the thyroid, the gland decreased to an essentially normal size. Each of 22 patients with toxic nodular goiter had a decrease in the size of the thyroid, but in a few subjects significant enlargement persisted in spite of large doses of radioiodine.

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[7] Williams, R. H.; Clute, H. M.; Anglem, T. J., and Kenney, F. R.: Thiouracil Treatment of Thyrotoxicosis: II. Toxic Reactions, J. Clin. Endocrinol. 6: 23-51 (Jan.) 1946.

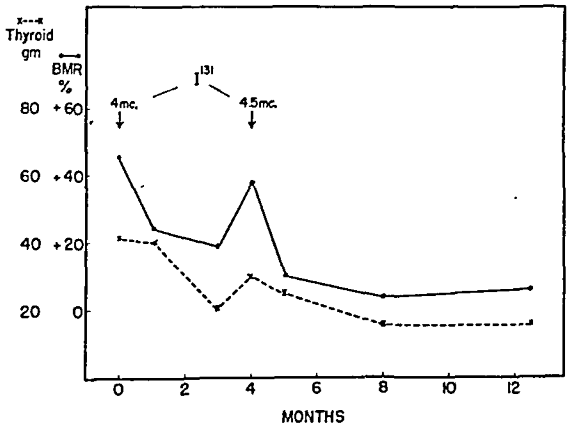
[8] In the patients reported on in January 1946,[6] the following results were obtained: Of the 49 patients who had had no relapse at that time, 10 have subsequently had a relapse. In 5 patients the relapse occurred within eight months after cessation of treatment; in 4 it occurred between twelve and eighteen months, and in 1 at twenty-four months. Of the 51 patients constituting the "relapse group," 14 had an additional course of thiouracil; 7 of these have remained well for more than two years after cessation of therapy.

[9] The size of the gland was estimated in grams on each visit of the patient. I am of the impression that in most patients with glands less than 60 Gm. in weight satisfactory estimations can be made.

In a few patients as many as five doses of the isotope were given before a remission was obtained. What was considered as probably a minimal effective dosage was administered, and then after an interval of approximately two months, if a remission had not occurred, another dose was given. This plan was followed until the desired results had been obtained. The total dosage of I^{131} used before a sustained remission was produced varied from 2 to 36 millicuries. Isotope counts over the thyroid and in urine and blood and palpation of the thyroid gland, especially with reference to size and nodularity, have all been compared with the dosage of radioiodine ultimately used in the production of a remission in the hope that a method could be evolved for a more accurate determination of the amount of isotope required. However, none of these procedures has proved satisfactory. Palpation of the gland has been of more help than the other criteria. No significant effects of the radioiodine on nonthyroid tissue have been observed.

REPORTS OF CASES

B., a housewife, aged 58, had had thyrotoxicosis for ten years. She had a persistence of her disease in spite of a subtotal thyroidectomy and of roentgen therapy. She reacted to tetramethylthiourea with fever and to propylthiouracil with fever and leukopenia. She failed to respond to iodide therapy, and she refused to have another thyroidectomy. Within ten weeks, after 4 millicuries of I^{131}, her basal metabolic rate had decreased from + 30 to — 24 per cent and the thyroid gland decreased from 30 to 20 Gm. Within 3.5 months after radioiodine her metabolic rate was + 3 per cent; she has remained in a euthyroid state for the subsequent two months.



Graph showing weight of thyroid gland and basal metabolic rate of patient D, as affected by administration of radioactive iodine.

D., a clerk, aged 53, failed to maintain a remission of his thyrotoxicosis on cessation of thiouracil treatment, having had this treatment for six months. Following 4 millicuries of I^{131}, he experienced a decrease in his thyrotoxicity and in the size of his thyroid gland, but within four months the gland had become larger and the metabolic rate had increased (chart). Following an additional 4.5 millicuries, the gland became smaller than normal and a state of euthyroidism has now existed for twelve months.

Table 8.—*Order of Choice of Treatment with Reference to Various Factors*

	Thyroidectomy	Radioiodine	Thiouracils
General availability	2	3	1
Rapidity of cure	1	2	3
Permanency of cure	1	2	3
Mortality	3	1	2
Paralysis of vocal cords	3	1	1
Hypoparathyroidism	3	2	1
Myxedema	2	3	1
Physical discomfort	3	1	1
Emotional upset	3	2	1
Persistent goiter	1	2	3
Scarred neck	3	2	1
Large nodular goiter	1	2	3
Large diffuse goiter	1	1	2
Expense	3	2	1
Regulation of therapy	2	2	1
Time lost from work	3	1	2

COMMENT

The data presented show that good results can be obtained with each of the three main types of therapy, although each has certain disadvantages. The problems, nonthyroidal as well as thyroidal, presented by a large group of thyrotoxic subjects may vary considerably and the type of therapy selected should take these problems into consideration. Some of the factors deserving attention in the selection of therapy are presented in table 8. Circumstances which are of little concern in certain cases demand serious consideration in others. Since there is great variation in the number and significance of these factors, as well as others, one is handicapped in making generalizations, but a few of these may be stated.

Radioiodine.—This form of treatment is favored by most of the patients because it is, to them, the simplest therapy. It is relatively inexpensive and is not associated with significant physical or emotional discomfort. It contracts the diffuse goiters to an essentially normal size, and in the majority of cases a remission of hyperthyroidism can be produced within six months. It has not caused death, hypoparathyroidism or paralysis of the vocal cords. It can be used in a few cases in which treatment with thiouracils or thyroidectomy would be associated with serious risk. It causes partial contraction of nodular goiters, but a point may be reached where, although the gland is still enlarged, it will not contract further. Such goiters tend to have many cysts, much fibrous tissue and numerous calcium deposits; radioiodine would not be expected to affect this type of tissue significantly.

The main drawback of this type of treatment is the difficulty involved in selecting the appropriate dosage, errors in which may either cause myxedema or permit the thyrotoxicity to persist. Errors of underdosage are less important than those of overdosage, since the former can be corrected by subsequent therapy. No significant nonthyroidal toxic reactions have been encountered. Much has been written, particularly in the lay press, about its carcinogenic powers. However, it remains to be determined whether, in the doses that I have used, it has a significant carcinogenic effect.

Radioiodine is distinctly less available throughout the country than are the other forms of therapy and, in the light of present information, it should remain so. Extensive use of it could pose a number of public health considerations. Moreover, the selection of appropriate dosage is more difficult than is the case with thiouracils.

Radioiodine is convenient for use in patients who have had prolonged treatment with one of the thiouracils but have failed to maintain a remission on cessation of treatment. Such patients have usually built up a strong hope that they will not have to have a thyroidectomy and are well pleased to learn that the isotope can be used instead.

Thiouracils.—One of the thiouracils, of which the propyl derivative is the one commonly used at present, can be employed wisely in some cases. Its general availability is of distinct advantage; high grade surgical treatment of the thyroid and radioiodine are available to only a relatively small proportion of patients. The ability to regulate the dosage is of distinct importance, especially in patients with psychobiologic disintegration and in those with pituitarigenic ophthalmopathy. Treatment with thiouracil is relatively simple and inexpensive and is not associated with paralysis of vocal cords, hypoparathyroidism or permanent myxedema. Although most of the patients treated with it for prolonged intervals experience a decrease in the size of the goiter, the limited extent of the decrease is such as to warrant consideration of the other types of therapy when large goiters are present, especially nodular ones. It is difficult to predict in a given case whether a course of thiouracil therapy will be followed by a sustained remission. However, the chances are sufficiently good in female patients over 30, with small goiters and slight thyrotoxicosis, to warrant a trial with propylthiouracil. The long duration of the therapy and the uncertainty of the results are of distinct concern to some patients. Moreover, it should be of concern to the physician when he observes that it is producing in the patient an attitude of chronic invalidism. Thiouracil therapy can be used effectively in patients who have had or may be likely to have complications from thyroidectomy.

Subtotal Thyroidectomy.—This method of therapy has an advantage over the other types in that it has become highly developed and the immediate and long range results from it have been well established. It produces a quicker sustained remission, and it actually removes the goiter. The remissions from this type of treatment may be more permanent than those following thiouracil treatment. It is of particular advantage in patients with large nodular goiters, especially when pressure symptoms are present. It is also indicated in patients with questionable carcinoma of the thyroid. It is associated in a few cases with hypoparathyroidism, paralysis of the vocal cords and, occasionally, death. It, like the other types of treatment, may be followed by a reappearance of the thyrotoxicosis. It involves more emotional and physical upset, necessitates hospitalization and is more expensive. One of its main drawbacks is that most persons just do not like to be operated on when satisfactory results can be obtained by other methods.

SUMMARY

Of the many treatments for thyrotoxicosis that have been employed, the only ones that can be used satisfactorily are thiouracils, radioiodine and thyroidectomy. Since good results can be obtained with each of these treatments, many aspects should be considered in selecting the appropriate type of therapy for a specific patient.

Subtotal thyroidectomy is the treatment of choice when a large nodular gland is present or when a rapid recovery is one of the main objectives.

At least one long course of propylthiouracil, or an allied compound, is indicated in female patients more than 30 years of age with mild thyrotoxicosis and a small goiter. It is also the treatment of choice in patients with certain psychic problems. It can be used advantageously in patients who have had one or more subtotal thyroidectomies and in others who might constitute surgical risks. It is valuable in cases in which radioiodine or good surgical therapy is not available.

Although radioiodine can be used in any patient with thyrotoxicosis, it is particularly useful in those who have had toxic reactions to thiouracils, and in those who are not good surgical risks or who have previously had one or more thyroidectomies.

ABSTRACT OF DISCUSSION

DR. SAUL HERTZ, Boston: The excellent presentation which Dr. Williams has given us has indicated that, except for the bottleneck of availability of the isotope, therapy with radioiodine, which my colleagues and I have used successfully now for nearly seven years, would likely replace the other forms of therapy for diffuse toxic goiter. The treatment of the nodular goiter with thyrotoxicosis is still a surgical problem. Treatment with radioactive iodine has been so successful in our hands, and also in the hands of many others who have tried it (it is being investigated in about twenty different institutions at present), that we have come to the conclusion that even though the nodular goiter must eventually be operated on, the use of radioactive iodine as a method of preoperative preparation of these patients is still practical. The availability of propylthiouracil has placed in the hands of the general practitioner a potent and effective drug for the treatment and control of hyperthyroidism; however, this form of treatment requires a prolonged period of close observation. If the patient is sufficiently under control by the physician—and in most instances that is so—it is perfectly permissible to start the patient on that form of therapy. However, it should be clearly understood that this therapy offers nowhere near 100 per cent possibility of a cure. It must be made clear to the patient that even though control of the disease may be present for six months, it is required that he be under surveillance for perhaps as long as two years, to make certain that he is cured. Any other form of therapy for thyrotoxicosis also includes a follow-up period of that length, so that the main advantage of propylthiouracil is its great availability. Radioiodine now has become safe and readily usable in properly qualified hands. The amount of radioiodine which is available in the world for other purposes at present is tremendous. We have sufficient in America to cure all the toxic goiters for the next ten centuries. Although radioactive iodine is nearly specific for the condition, there may come a time when we will have a corrective of the metabolic and hormonal unbalance which occurs in a patient with hyperthyroidism sufficient to warrant giving up all the other forms of therapy in favor of its use. By a combination of the studies of the results obtainable from surgical therapy, the use of the antithyroid drugs and radioactive iodine, both as a tracer and as a therapeutic agent, we have great promise of discovering the physiologic and final method for the treatment of the disease. Radioactive iodine has been effective in a large number of cases of toxic goiter after all other methods failed. It is the method of choice in the complicated cases wherever it is available.

Dr. Willard O. Thompson, Chicago: It seems to me that this paper by Dr. Williams and the discussion by Dr. Hertz well illustrate the advance in the last few years in the treatment of toxic goiter. Just a short time ago, we thought treatment was pretty well perfected. Operative mortality had been reduced in leading clinics to about 1 per cent. Then along came radioactive iodine and the antithyroid drugs, and everything that had been written on the treatment of toxic goiter up to about three years ago is now completely out of date. With the use of antithyroid drugs, it is possible to control thyrotoxicosis completely before the patient comes to operation. As a result, the risk of operation is no greater than in a patient without thyrotoxicosis. As a result of the introduction of these drugs, operative mortality has dropped from 1 per cent to about 0.1 per cent in leading clinics. In other words, it has dropped almost to the vanishing point. As a general principle for the treatment of toxic goiter on a large scale, the best method at present is probably subtotal thyroidectomy after adequate preoperative preparation with propylthiouracil and iodine. Fortunately, it is possible to individualize the treatment of the patient, and, therefore, it is best not to adhere rigidly to any general rule but to treat each patient as an individual problem. It seems to be agreed that antithyroid drugs or radioactive iodine should be used as the sole method of treatment in patients who for some reason or other present a poor operative risk. They seem to represent the treatment of choice in patients who have persistence or recurrence of the disease following subtotal thyroidectomy. The experience of most observers indicates that when antithyroid drugs are used for medical management without operative intervention, the disease may be permanently controlled in about 60 per cent of the patients. This percentage is too low to warrant their use for routine medical management. They represent an important advance, but I do not believe that any antithyroid drug has yet been developed which produces a cure in a sufficiently large percentage of patients without toxic reactions to warrant the statement that the medical management of the disease with antithyroid drugs has arrived. As far as radioactive iodine is concerned, the results appear to be promising. This may prove to be the method of choice in the treatment of exophthalmic goiter. Probably we should reserve judgment for a few years until we see just what the status of this therapeutic agent is, that is, whether there are any untoward late complications. A few years ago my associates and I irradiated the pituitary in a small series of patients with exophthalmic goiter and cured about a third of them with that method. This percentage of cures is, of course, altogether too small, but the results are interesting from the standpoint of the mechanism involved in the disease.

Dr. Cecil J. Watson, Minneapolis: Would Dr. Williams comment on the question of possible increase in incidence of carcinoma of the thyroid five, ten or fifteen years hence in persons who have received radioactive iodine (I^{131})?

Dr. Williams: I should like to reemphasize the fact that there is a place for each of the three methods of therapy for thyrotoxicosis. In selecting the type of treatment to prescribe, one should consider not only the many specific problems of the patient, but also the quality of therapy available in the subject's community. The latter aspect is of especial concern in recommending thyroidectomy or radioiodine. On the other hand, propylthiouracil is available for use in any community. I am of the impression that following appropriate treatment with this compound for one to one and a half years a sustained remission will occur in approximately 70 per cent of female patients over 30 years of age, with mild thyrotoxicosis and only slight enlargement of the thyroid gland. In the cases in which propylthiouracil therapy is unsuccessful, thyroidectomy or radioactive iodine may still be prescribed. In reply to Dr. Watson's question concerning the carcinogenic effect of radioiodine, the significance of this complication remains to be determined. However, I am of the impression that the possibility should not be regarded as a strong contraindication of therapy, on considering the amount of activity in the doses of radioiodine that we used, and the fact that the greatest concentration of isotope occurs in the thyroid gland, an infrequent site for highly malignant neoplasms.

Special Article

PRIMER ON THE RHEUMATIC DISEASES

PREPARED BY A COMMITTEE OF THE AMERICAN RHEUMATISM ASSOCIATION

INTRODUCTION

This is the third edition of the Primer. The first was published by the American Committee for the Control of Rheumatism in 1934 in cooperation with the Committee on Scientific Exhibit of the American Medical Association. A second edition, devoted only to arthritis, was published in 1942 by a committee of the American Rheumatism Association, the latter organization having meanwhile succeeded the American Committee for the Control of Rheumatism. Now advances in knowledge of the rheumatic diseases necessitate this third edition, which is brought out at this time especially in connection with the Seventh International Congress on Rheumatic Diseases to be held in New York City from May 30 to June 3, 1949.

SCOPE OF THE PRIMER

This edition is concerned with the rheumatic diseases in general. As in the case of the previous Primers, its purpose is to present its subject matter as simply and briefly as is consistent with adequate coverage and to present it from the point of view of the general physician rather than that of the specialist.

The term "rheumatism" as employed here includes that large and rather miscellaneous group of diseases and disorders of the supporting tissues which are of concern to the American Rheumatism Association: namely, rheumatic fever, the various forms of arthritis and the large group of less clearly defined disorders such as fibrositis, myositis, bursitis, neuritis and neuralgia. It is not intended to include the structural defects of the bones and joints which are the primary concern of the orthopedic surgeon, although many of these are listed in the classification for the sake of completeness.

Because of the condensed nature of this Primer it has not seemed advisable to give individual references to specific articles in the medical literature. However, a number of general references are cited in the bibliography and the reader is referred particularly to the Review of American and English Literature which appears each year in the *Annals of Internal Medicine* under the editorship of a committee of the American Rheumatism Association.

INCIDENCE OF RHEUMATIC DISEASES

In 1938 the United States Public Health Service reported a survey of the calculated incidence of a large number of diseases in the United States. The results, which are summarized in table 1, revealed that the rheumatic diseases are the most common cause of chronic illness and that they disable each year ten times as many persons as diabetes and tuberculosis, seven times as many as cancer and twice as many as heart diseases. Furthermore, the rheumatic diseases enumerated in the survey included arthritis, gout, neuralgias,

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This article has been abbreviated in The Journal by omission of the bibliographical references. These may be found in the authors' reprints.

The Committee of the American Rheumatism Association consists of Dr. Currier McEwen, New York, Chairman; Drs. Joseph J. Bunim, Richard H. Freyberg, Edward F. Hartung and Charles Ragan, New York; Dr. John H. Talbott, Buffalo, and Dr. Hans Waine, Boston.

neuritis, lumbago and the like, but did not include rheumatic heart diseases. Hence, if corrected for the latter, the incidence would have been found even higher.

In respect to days lost from work, the rheumatic diseases were surpassed only by nervous and mental diseases, as shown in table 2. The estimated cost of medical care alone for the patients exceeds $100,000,000 annually, but to this sum there must be added an inestimable amount due to losses in production and education occasioned by disability among workers and students. These indications of the enormous economic loss resulting from rheumatism are borne out by data from other countries. In England, for example, it has been estimated that rheumatism causes one sixth of the total industrial disability, and one sixteenth of all funds paid out by that country for pensionable invalidity is for the rheumatic diseases.

Table 1.—*Estimated Prevalence of Specified Chronic Diseases in the United States (1937)*

Disease	Number of Cases
Rheumatism	6,850,000
Heart disease	3,700,000
Arteriosclerosis and high blood pressure	3,700,000
Hay fever and asthma	3,450,000
Hernia	2,100,000
Hemorrhoids	2,000,000
Varicose veins	1,750,000
Chronic bronchitis	1,700,000
Nephritis and other kidney diseases	1,550,000
Nervous and mental diseases	1,450,000
Goiter and other thyroid diseases	1,200,000
Sinusitis	1,150,000
Cancer and other tumors	930,000
Diseases of female organs	720,000
Tuberculosis, all forms	680,000
Diabetes mellitus	660,000
Diseases of gallbladder and liver	640,000
Other diseases of the circulatory system	440,000
Chronic tonsillitis and other throat disorders	380,000
Ulcers of stomach and duodenum	330,000
Diseases of bladder and urethra	270,000
Chronic diseases of the skin	270,000
Anemia	240,000
Chronic appendicitis	170,000
Chronic diseases of the eye	150,000
Chronic diseases of the ear	100,000
Chronic pleurisy	90,000
Diseases of the prostate and male genitourinary organs	80,000

From The National Health Survey, Bulletin 6, Sickness and Medical Care Series, United States Treasury Department, Public Health Service, 1938.

It must be emphasized that the rheumatic diseases in tables 1 and 2 include far more than the definite arthritides and that figures of the magnitude shown are reached because of the inclusion of fibrositis, bursitis and other nonarticular forms of rheumatism. Unfortunately, accurate data are not available as to the incidence of the individual rheumatic diseases in the United States. It has been estimated that in general office or general clinic practice the distribution of rheumatic diseases in 100 patients who complain of rheumatism sufficiently to make them consult a physician is approximately as follows: 1 with rheumatic fever; 2 with gonococcic arthritis; 3 to 5 with miscellaneous forms (tuberculous arthritis, arthritis with ulcerative colitis, Charcot's joints, etc.); 3 to 5 with gout; 7 to 10 with traumatic arthritis; 10 to 20 with nonarticular rheumatism; 25 to 30 with degenerative joint disease, and 30 to 40 with rheumatoid arthritis. It has been reported that in Sweden, in 1943, 0.12 per cent of the population sought medical care because of rheumatic fever; 0.25 per cent because of rheumatoid arthritis; 0.17 per cent because of degenerative joint disease, and 0.4 per cent because of nonarticular forms of rheumatism—a total of 0.9 per cent of the people of that country who were the victims of the rheumatic diseases in that year.

ORGANIZATION OF THE ATTACK AGAINST THE RHEUMATIC DISEASES

It is obvious that a group of diseases having the numerical and economic importance of those with which we are dealing demands an organized effort to combat it. One of the earliest organized attempts to study the rheumatic diseases was started in England with the Cambridge Committee for the Study of Special Diseases; but this was interrupted by the first world war. In 1920, the Ligue Internationale contre le Rheumatisme was established with headquarters at the Hague. Although originally composed principally of European representatives, the Ligue encouraged the establishment in other countries of groups interested in the problem. This movement extended to the United States in 1928 with the formation of the American Committee for the Control of Rheumatism. This committee worked actively to arouse the interest of the profession in the magnitude of the sociologic problem presented and to extend knowledge of the rheumatic diseases by means of publications and through exhibits in connection with the Scientific Exhibit of the American Medical Association. By 1930, it was apparent that there should be a national society for the study and control of the rheumatic diseases, and the American

Table 2.—*Estimated Annual Number of Days Lost from Work or Other Usual Pursuits by Reason of Specific Chronic Diseases (United States, 1937)*

Disease	Annual Number of Days Lost
Nervous and mental diseases	132,500,000
Rheumatism	97,200,000
Heart disease	95,200,000
Arteriosclerosis and high blood pressure	56,900,000
Tuberculosis, all forms	41,400,000
Cancer and other tumors	36,300,000
Nephritis and other kidney diseases	28,400,000
Diseases of the female organs	26,800,000
Hay fever and asthma	21,900,000
Diseases of gallbladder and liver	20,000,000
Diabetes mellitus	19,200,000
Ulcers of the stomach and duodenum	13,600,000
Hernia	13,600,000
Chronic diseases of the skin	10,300,000
Anemia	8,500,000
Diseases of the bladder and urethra	8,200,000
Chronic bronchitis	8,000,000
Chronic appendicitis	7,600,000
Goiter and other thyroid diseases	7,600,000
Other diseases of the circulatory system	6,600,000
Sinusitis	6,000,000
Varicose veins	5,900,000
Chronic tonsillitis and other throat infections	5,400,000
Hemorrhoids	5,100,000
Chronic pleurisy	4,200,000
Chronic diseases of the eye	4,200,000
Chronic diseases of the ear	3,300,000
Disease of the prostate and male genitourinary organs	3,300,000

From The National Health Survey, Bulletin 6, Sickness and Medical Care Series, United States Treasury Department, Public Health Service, 1938.

Rheumatism Association was founded. The association holds yearly scientific meetings, sponsors an extensive annual review of the English and American literature and promotes wider interest and more precise knowledge concerning these disorders. The formation of affiliated societies at state, regional or local levels has been encouraged.

Under the auspices of the Ligue Internationale contre le Rheumatisme six international congresses have been held and the seventh will be held in New York City from May 30 to June 3, 1949.

TABLE 3.—*Classification of Rheumatic Diseases*

- Arthritis due to infection. *Specify joint and infection when known, as:*
  - Arthritis of spine due to tuberculosis
  - Arthritis of knee due to gonococcic infection
  - Arthritis of wrist due to pneumococcic infection
  - Arthritis of knee due to syphilis
- Arthritis due to rheumatic fever. *Record Rheumatic fever as primary diagnosis invariably*
- Arthritis, rheumatoid, of....*Specify as:*
  - Arthritis, rheumatoid, multiple (proliferative arthritis,* atrophic arthritis,* chronic infectious arthritis,* Still's disease *)
  - Arthritis, rheumatoid, of spine (Marie-Strümpell arthritis,* ankylosing spondylitis,* von Bechterew spondylitis,* spondylitis ankylopoietica,* spondylitis rhizomelique *)
- Arthritis due to direct trauma of....*Specify joint and trauma, as:*
  - Arthritis of knee due to contusion
  - Arthritis of elbow due to habitual dislocation
- Neurogenic arthropathy. (Charcot joint *) *Specify joint and cause, as:*
  - Tabetic arthropathy of knee
- Arthritis due to gout. *Specify joint. Record Gout as primary diagnosis invariably*
- Degenerative joint disease, multiple, due to unknown cause (osteoarthritis,* hypertrophic arthritis,* degenerative arthritis,* chronic senescent arthritis *)
- New growths of joints. *Specify joint and neoplasm as:*
  - Synovioma of knee
- Hydrarthrosis, intermittent, of....*Specify joint*
- Fibrositis. *Specify joint or area*
- Myositis, bursitis, neuritis, and neuralgia. *Specify muscle, bursa or nerve involved*
- **Diseases in which arthritis, arthropathy or arthralgia is frequently associated (diagnose disease, list joint manifestation as symptom)**
  - Acromegaly
  - Acute disseminated lupus erythematosus
  - Cyst of meniscus of knee
  - Dermatomyositis
  - Drug intoxication. *Specify drug when known*
  - Erythema multiforme exudativum
  - Erythema nodosum
  - Hemophilia
  - Hysteria
  - Ochronosis
  - Osteochondritis dissecans
  - Osteochondromatosis
  - Periarteritis nodosa
  - Psoriasis
  - Purpura, various types
  - Raynaud's disease
  - Reiter's disease
  - Scleroderma
  - Serum sickness

* Names in parentheses are synonyms.

Just before the entry of this country into the second world war, a committee of the American Rheumatism Association was appointed to study the possibility of undertaking a national fund-raising effort to support research and teaching and the care of patients with rheumatic diseases. This important undertaking was delayed by the outbreak of hostilities, but since the end of the war rapid progress has been made. Under the sponsorship of the American Rheumatism Association, a separate organization, the Arthritis and Rheumatism Foundation, has been founded with a board composed of physicians and influential laymen and with the purpose of organizing the essential appeal for funds on both a national and a local basis. At the same time, the National Research Council has established a committee on the rheumatic diseases, at the request of the American Rheumatism Association, which is making a survey of facilities for patient care, research and teaching and which will evaluate applications for grants in aid of research as the foundation acquires the necessary funds. Thus, at long last, a national program has been inaugurated which can make an organized attack on this serious group of diseases which afflicts so many millions of persons and causes such a vast economic loss to the nation.

CLASSIFICATION

Rheumatic diseases may be roughly divided into rheumatic fever, arthritis and the periarticular and nonarticular forms of "rheumatism" such as fibrositis, bursitis and myositis.

The majority of cases fall into seven important groups: (1) arthritis due to known microbial agents, (2) the arthritis of rheumatic fever, (3) rheumatoid arthritis, (4) degenerative joint disease, (5) arthritis due to direct trauma, (6) arthritis of gout and (7) the nonarticular forms of rheumatism. No classification of diseases can be entirely satisfactory while the etiology of many of those diseases remains unknown. That shown in table 3 is admittedly imperfect, but it has the great merit that it has been adopted as official by both the American Rheumatism Association and the Standard Nomenclature of Disease, and much confusion in terminology will be avoided by its use.

These various forms of rheumatic diseases are discussed in the pages which follow; hence only a few comments are called for at this point:

1. Rheumatoid arthritis. Under this heading are included certain diseases which are thought to be merely variants of classic rheumatoid arthritis, such as Still's disease, Marie-Strümpell or ankylosing spondylitis and arthritis associated with psoriasis. Hence these should be listed as rheumatoid arthritis, but, because the relationship is not established with certainty, the other name should be added in parenthesis.

2. Degenerative joint disease. It is now accepted that this is a process related to advancing age and "wear and tear." Hence it occurs in multiple joints with greater or lesser symptoms in all persons who live long enough. The complete explanation of this form is still lacking, however; hence in table 3 it is noted as "due to unknown cause." Other cases, however, occur in younger persons and usually involve only one or two joints. Careful history and examination will usually reveal one of three predisposing causes in such cases which hastened the wear and tear in those particular joints. These are: (1) congenital defects, (2) previous important injury or (3) previous arthritis of other types. In these instances the predisposing cause should be noted in the diagnosis, as, for example, "degenerative joint disease of right knee secondary to old intracapsular fracture."

3. The term "mixed arthritis" is to be avoided. When employed in the past it has usually been applied to patients who show evidences of both rheumatoid arthritis and degenerative joint disease. A preferable diagnosis in such cases is "rheumatoid arthritis" if that is the cause of the major disability or, rarely, "degenerative joint disease secondary to inactive rheumatoid arthritis" if the latter disease, as such, contributes little to the disability.

ARTHRITIS DUE TO KNOWN MICROBIAL AGENTS

In this section, diseases of the joints caused by the following micro-organisms are described:

Staphylococcus
Streptococcus
Pneumococcus
Gonococcus
Meningococcus
Tubercle bacillus
Treponema pallidum
Brucella

Infections of the joints caused by Eberthella typhosa, Escherichia coli, Bacterium dysenteriae, Leishmania donovani (granuloma inguinale), the virus of lymphogranuloma venereum and certain fungi have not been included because of their relative infrequency.

STAPHYLOCOCCIC, STREPTOCOCCIC, PNEUMOCOCCIC, GONOCOCCIC AND MENINGOCOCCIC ARTHRITIS

Arthritis due to infection with the various pyogenic cocci can be conveniently described as a group because cases due to the different micro-organisms are very similar. These arthritides are often referred to collectively as acute pyogenic arthritis.

Incidence and Pathogenesis.—The incidence of acute infectious arthritis caused by organisms that are sensitive to antibiotic drugs has fallen decidedly during the past decade. Well above half the cases in this group are caused by the staphylococcus and hemolytic streptococcus. The bacteria may reach the synovial tissue by hematogenous dissemination from a remote focus. Staphylococci and hemolytic streptococci may invade the joint by direct extension from a suppurative process in adjacent bone, such as osteomyelitis or epiphysitis. They may also be directly introduced into the cavity by a penetrating wound.

Pathology.—The pathologic changes vary in degree with the severity and duration of the infection. The histologic appearance of the articular structures is that of an acute suppurative inflammation. The synovial tissue is hyperemic, swollen, thickened and infiltrated with cells which are predominantly polymorphonuclear leukocytes. If suppuration continues for several weeks, the leukocytic enzymes digest areas of the articular cartilage with resulting ulceration and irreparable destruction. When there is severe damage of the cartilage, ankylosis may result. Abscesses may form in the marrow of the subchondral bone. The soft periarticular structures often become acutely inflamed.

Symptoms.—The systemic disease may be so severe and the arthritis so relatively mild that the joint infection is overlooked. In other cases the arthritis may be unaccompanied by constitutional signs and the probable primary focus of infection remains obscure. Generally, the onset is sudden with fever, chills, sweats, malaise and anorexia. The joint is exquisitely painful and tender, red, warm and swollen. Its capsule is distended by effusion, and the adjacent muscles are in spasm. Tenosynovitis and bursitis may be associated features. As a rule only one or two joints are affected, commonly the hip, knee, elbow or shoulder, although no joint is exempt. Spondylitis and infection of the sacroiliac joint are exceptional.

Laboratory Observations.—Leukocytosis (15,000 or more) with a rise in the percentage of polymorphonuclear cells is common. The erythrocyte sedimentation rate is elevated. Blood culture will often reveal the causative micro-organism. Special effort should be made to take one or more cultures before chemotherapy is begun. In typical cases the synovial fluid is cloudy or frankly purulent and the leukocytes may number more than 100,000 per cubic millimeter with over 90 per cent polymorphonuclear cells. On bacteriologic examination (both smear and culture) of aspirated synovial fluid the organism causing the arthritis can usually be demonstrated.

Roentgenologic Changes.—These do not appear until the optimum time for successful treatment has passed. They are, therefore, of little diagnostic value. Roentgenograms show abnormalities after the tenth day and indicate the extent of damage to the articular cartilage and to the adjacent bone. They may reveal, in addition, osteoporosis and periostitis, osteomyelitis or epiphysitis.

Diagnosis.—Acute monarthritis of abrupt onset, a red, warm, swollen, exquisitely painful and tender joint, associated with fever, leukocytosis and rapid sedimentation rate is characteristic of suppurative arthritis or acute gout. The presence of bacteremia and the absence of hyperuricemia make the diagnosis of suppurative arthritis almost conclusive. Recovery of the organism from synovial fluid by smear or culture proves the diagnosis.

Prognosis and Course.—The prognosis as to life is generally determined by the nature of the systemic disease and the presence or absence of serious extra-articular complications. Probably the most important factor in determining to what extent joint function will be restored is the time when specific treatment is begun. If therapy is started within the first week of infection the results are decidedly better than when started during the second week. After the third week, the end results are generally poor.

Treatment.—The guiding principles of treatment are to halt the joint infection before the articular cartilage is destroyed and to begin motion before adhesions and muscle atrophy develop. Early bacteriologic diagnosis and prompt chemotherapy are essential. Hemolytic streptococci, pneumococci and meningococci as a rule are sensitive both to sulfonamide compounds and to penicillin. Staphylococci and gonococci are rather susceptible to the action of penicillin and often resistant to the sulfonamide compounds. Both drugs permeate inflamed synovial tissue, and oral or intramuscular administration in adequate dosage obviates the need for intra-articular injections. The average dose used is 40,000 units of penicillin given intramuscularly every three hours, or 1.0 Gm. (grains 15) of sulfadiazine by mouth every four hours until the temperature is normal and the synovial fluid becomes sterile. In severe infections both drugs may be used. When the joint fluid becomes sterile any excess fluid is gradually absorbed after chemotherapy is stopped. If the infectious process does not respond to oral and intramuscular chemotherapy, intra-articular instillation of penicillin (20,000 units in 10 cc. of isotonic sodium chloride solution every twenty-four or forty-eight hours) or in exceptional cases surgical drainage may become necessary. The joint should be immobilized in splints or by traction until the arthritis subsides. Active motion within the range of the patient's capacity to tolerate the discomfort should be instituted as early as possible even while the joint is in cast or traction. This will promote better functional results and shorten the period of disability. Physical therapy may be administered after the temperature has returned to normal and the local infection has subsided.

Features Associated with Specific Types of Pyogenic Arthritis.—In addition to the foregoing general comments, which are applicable to acute arthritis caused by all the pyogenic cocci, certain features of gonococcic and meningococcic arthritis warrant individual mention.

(*a*) Gonococcic Arthritis: Although more than 1,000,000 new cases of gonorrhea occur annnually in this country, the incidence of the articular complications has fallen from 3 to less than 0.5 per cent, largely as a result of the use of penicillin, which cures 95 per cent or more of the cases of uncomplicated gonorrhea. The organism spreads from the primary focus in the genitourinary tract through the lymphatics and blood stream to the synovial tissues. Yet in only 25 per cent of the cases is the diplococcus recovered from the joint fluid, rarely from the blood stream. Arthritis usually appears within ten to thirty days after the initial infection; months to years may, however, intervene between the urethritis and arthritis.

The onset is sudden, usually with an acute migratory polyarthritis which in a few days to a week becomes monarticular. Tenosynovitis occurs more frequently than in any other types of arthritis, particularly when the wrists or small joints of the hands or feet are affected. The constitutional reactions, such as fever, leukocytosis and accelerated sedimentation rate, are less severe than the local signs.

Cultures of exudate and synovial fluid will yield positive results several times more frequently than smears, although occasionally the smear is positive and the culture negative; both procedures should be done. The reaction to the gonococcus complement fixation test becomes positive within ten to thirty days of the onset of arthritis in 90 per cent or more of the cases. Tests should be repeated at weekly or biweekly intervals if results of the earlier ones are negative and the diagnosis remains in doubt. Chemotherapy apparently does not affect the specificity of this test. Since patients whose serum gives a positive reaction may acquire another type of arthritis, this test alone does not prove the diagnosis of gonococcic arthritis. Contrariwise, a negative reaction to a complement fixation test does not exclude such a diagnosis. There are no characteristic roentgen changes in gonococcic arthritis which distinguish it from other types of suppurative joint disease.

The diagnosis of gonococcic arthritis may be made on the basis of (1) history of exposure and typical clinical course, (2) demonstration of the gonococcus in the exudate of the genital tract, (3) positive culture or smear of the synovial fluid, (4) positive complement fixation and (5) recovery or definite improvement with penicillin or sulfonamide therapy. In the absence of (3) the diagnosis is presumptive and in the absence of (3) and (5) it should be carefully reconsidered, as rheumatoid arthritis may prove to be the correct diagnosis. Gonococcic arthritis in its early polyarticular phase often simulates rheumatic fever.

Gonococci are more sensitive to the action of penicillin than are streptococci, and fastness to this drug has not yet been observed. Treatment may be supplemented with sulfadiazine or fever therapy with advantage in stubborn cases. Until these measures bring relief, immobilization will offer the patient considerable comfort.

(*b*) Meningococcic Arthritis: The incidence of articular complication during meningococcic infections has varied with different epidemics from 2 to 20 per cent.

There are two general types of arthritis associated with this disease. One occurs during the first few days and consists of a transient synovitis which resolves spontaneously without progressing to effusion or suppuration. It may develop concomitantly with the generalized purpuric eruption commonly seen in severe meningococcemias. Intra-articular and periarticular petechial hemorrhages have been observed. Multiple joints are affected simultaneously. Arthralgia may be the only manifestation; often, however, the joints are tender and red. Swelling is slight, if present at all, and effusion is exceptional. Normal joint function is restored in a few days.

The second type occurs toward the end of the first week of illness. The meningococci invade and damage the synovial tissue and produce purulent arthritis. This type usually is monarticular. The knee or wrist are most commonly affected; any other peripheral joint may, however, be involved. The joint is acutely inflamed and distended with effusion. A diagnosis of meningococcic arthritis can be proved only by recovery of the organism from the joint fluid. The general prognosis is not significantly influenced by the arthritis. The bacteremia and arthritis usually respond satisfactorily to sulfonamide compounds (orally) or penicillin (intramuscularly).

SYPHILITIC ARTHRITIS

Incidence.—The reported incidence of syphilitic disease of the joints has been declining because of stricter diagnostic criteria and earlier more adequate antisyphilitic therapy. Probably less than 1 per cent of patients with syphilis have arthritis of syphilitic origin, and not more than 0.1 to 0.5 per cent of diseases of the bones and joints in this country are due to syphilis.

Etiology.—Arthritis occurs in the course of both the congenital and the acquired type; it may appear during infancy, childhood or early adult life. In the acquired type it may be due either to direct spirochetal infection of the joints or to neurogenic changes (Charcot's joints) secondary to tabes. The latter constitutes about half of the cases in the acquired group.

Clinical Types and Symptoms.—(*a*) Arthralgia: Vague muscle and joint pains without objective signs of arthritis may occasionally be seen during the height of the systemic reaction in early acquired syphilis.

(*b*) Osteochondritis, Periostitis and Synovitis: Among syphilitic infants osteochondritis (including epiphysitis) and periostitis are commonest. The joint is markedly swollen as a result of periarticular infiltration. Motion is limited (Parrot's pseudoparalysis), but there is practically no pain on manipulation. Among older children (8 to 16 years) symmetric, painless synovitis (Clutton's joints) is the commonest form of syphilitic arthritis. This type is rarely encountered in adults with acquired syphilis. The knees are most commonly affected. There is decided effusion bilaterally without redness and with only slight, if any, pain, tenderness or warmth. There are no bony changes, and ankylosis never results. Response to specific treatment is usually good. Occasionally the process ends spontaneously after following a chronic course. Interstitial keratitis is often associated with Clutton's joints.

(*c*) Gummatous Arthritis: Gummatous arthritis may occur in late tertiary syphilis, congenital or acquired. It is frequently monarticular. A gumma may arise in bone and extend into an adjacent joint, or it may originate in the synovia or other soft articular or periarticular structures. Swelling with little or no pain and without stiffness, local heat or muscle spasm is characteristic. Bone destruction with osteolytic areas is frequently seen on roentgenograms. Response to antisyphilitic therapy is striking.

(*d*) Charcot's Joints: Charcot's joints are seen in about 5 to 10 per cent of patients with tabes dorsalis. The pathogenesis of this form of arthropathy is not clearly understood, but experimental evidence indicates that it is not due to actual trophic changes and suggests that this disorder is merely a rapidly developing degenerative process in joints lacking the protection of pain and position sense and hence used in an awkward and traumatizing manner. The onset may be gradual or sudden and the course progressive or stationary. One large joint of the lower extremities is usually affected, but the process may be multiarticular and occasionally symmetric. The "flail joint" is enlarged, deformed and can be painlessly flexed, extended and rotated to extraordinary degrees in several directions. Warmth, redness and tenderness are absent. On roentgenographic examination there are usually destructive and productive bone changes with pathologic fractures, disintegration and disorganization of the joint. The blood and spinal fluid Wassermann reaction may be negative in cases of "burned out" tabes dorsalis. In such cases neurologic signs of tabes suggest the diagnosis. Antisyphilitic therapy is ineffective but should be administered. Treatment consists of orthopedic measures (mechanical or surgical) for effecting immobilization and stabilization. Fusion has been reported to be successful in carefully selected cases.

Differential Diagnosis.—It is important to establish whether arthritis present in a patient with syphilis is of syphilitic origin or coincidental. A positive Wassermann reaction on the synovial fluid and blood is not conclusive. The diagnosis is proved by (1) unequivocal response to antisyphilitic therapy, (2) positive biopsy of synovial or juxta-articular tissue or (3) positive result from injection of joint fluid or tissue intratesticularly into a rabbit. It is presumptive in the presence of (1) positive serologic reaction, (2) other stigmas of congenital or acquired syphilis or (3) characteristic changes in the bones seen in roentgenograms.

Treatment.—Penicillin is the treatment of choice. A total of at least 4,000,000 units should be given over a period of not less than fifteen days. If aqueous solutions of penicillin are used, individual injections should be given every four hours. If slowly absorbed preparations, such as procaine penicillin in oil and 2 per cent aluminum monostearate, are used, injections of 450,000 to 600,000 units can be given three times a week until ten or twelve injections have been given. If penicillin fails arsenic and bismuth compounds should be tried. The arsenical of choice is arsenoxide (oxophenarsine hydrochloride, dichlorophenarsine hydrochloride or phenylarsine hydrochloride).

TUBERCULOUS ARTHRITIS AND SPONDYLITIS

Incidence.—The incidence of tuberculosis of bone and joints is declining in this country. In approximately 4 per cent of patients with tuberculosis infection of skeletal structures develops, and 1 per cent of the deaths from tuberculosis result from tuberculous spondylitis. In 1947 there were about 400,000 cases (old and new) of tuberculosis in the United States of which approximately 16,000 had involvement of bones or joints.

Etiology and Pathogenesis.—Tuberculosis in man is caused almost exclusively by the human type of bacillus, since less than 0.4 per cent of the cattle in this country are infected. The primary lesion develops in the lung as a result of infection by inhalation. The bacilli spread from this focus to the bronchopulmonary lymph nodes, where, under suitable circumstances, caseation results. Infected lymph nodes are the commonest source of hematogenous dissemination, and organisms may metastasize by this route to bone or directly to synovial tissue.

Tuberculous arthritis generally develops before the age of 14, although not infrequently this disease occurs in patients above 50. Eighty-five per cent of the cases of tuberculosis of the spine begin before the age of 10. Negroes are especially susceptible because of the greater relative incidence of hematogenous dissemination among them.

Pathology.—The joints of the lower limbs are involved much more frequently than those of the upper. The spine (Pott's disease) is affected more often than any peripheral joint. In the spine the lower thoracic and upper lumbar vertebrae are the usual sites. Bone destruction results in collapse of the vertebra and the process then spreads along the anterior or posterior longitudinal ligaments to involve several vertebrae above or below. In some cases infection spreads from one vertebra to the next through the intervertebral disk, which is thus eroded relatively early. When circumstances lead to progression of the disease, tubercles multiply and coalesce, their blood supply becomes inadequate, and necrosis, caseation and eventually liquefaction and abscess formation follow. The abscess usually dissects along a path between fascial planes or muscle bundles and may appear at a distant point, then rupture and leave a discharging sinus. When, however, resistance to invasion is good, the infection may become quiescent and finally arrested. The lesion may then resolve or heal by fibrosis or bony fusion.

Tuberculosis of the peripheral joints may result either from direct bacillary invasion of the synovial tissue (tuberculous synovitis) or from penetration into the joint by tuberculous tissue from adjacent diseased bone (osteoarticular). The granulation tissue which soon forms undermines and separates the articular cartilage. Periarticular swelling with relatively little effusion develops. Caseation, abscess and sinus formation may result. The articular cortex and neighboring bone is often destroyed. The gross pathologic appearance of a tuberculous joint often cannot be distinguished from that of rheumatoid arthritis.

Clinical Types and Symptoms.—(*a*) Tuberculous Spondylitis (Pott's Disease), and Arthritis: Both forms are characterized by an insidious onset, a chronic progressive course protracted for months or years with remissions and exacerbations and the involvement of usually one, occasionally two and rarely three or more joints or vertebrae. Tuberculous arthritis resembles other forms of arthritis in that spasm of the regional muscles is severe and disabling, but it differs from them in that muscle atrophy is relatively early and prominent, while articular pain and tenderness are comparatively late. The typical joint is warm, boggy and swollen. The doughy feeling and swelling are due chiefly to edema and infiltration of the synovial tissue rather than to effusion, which is scanty. Redness may be present early but is usually absent in the advanced stages. Not infrequently the patient emphasizes trauma in the history of events immediately preceding his arthritis. Constitutional symptoms, such as fever, loss of weight or sweating, usually are not conspicuous.

(*b*) Tuberculous "Rheumatism" (Poncet's Disease): Tuberculous rheumatism has been described as a nondestructive tuberculous polyarthritis resembling either rheumatic fever or rheumatoid arthritis, occurring in a patient who has a tuberculous lesion elsewhere. It is doubtful, however, that such an entity exists, and diseases so diagnosed are probably other forms of joint disease occurring in patients who happen also to have extra-articular tuberculosis.

Associated Features and Complications.—Since the tubercle bacilli reach the spine, juxta-articular bone or synovial membrane by the blood stream, it is to be expected that extra-articular tuberculosis may exist. Pulmonary tuberculosis is common; infections of the serous membranes and urogenital tract are less frequent.

The commonest complication is abscess formation in the paravertebral region or in the vertebral bodies when the spine is affected and in the bone or periarticular soft structures when a peripheral joint is involved. Sinuses originating from an abscess or joint often form and when present suggest the diagnosis. In Pott's disease meningitis and paraplegia are not uncommon. When the tuberculous infection is prolonged secondary amyloidosis may result.

Laboratory Observations.—The total and differential leukocyte counts are usually normal. The erythrocyte sedimentation is elevated. On bacteriologic study the tubercle bacillus will be found in the synovial fluid, synovial tissue or the pus aspirated from an abscess or expressed from a sinus. It may be demonstrated by smear or recovered by culture or after inoculation of suitable material into guinea pigs. A biopsy of the synovial tissue will show the pathognomonic tubercle. Lymph nodes in the region of an involved joint may show evidence of tuberculous infection. The total cell count of synovial fluid may vary from 5 to over 100,000 per cubic millimeter, and the differential count is not characteristic, although there may be more lymphocytes and monocytes than in other types of arthritis. The total protein content per hundred cubic centimeters of fluid is increased.

Tuberculin Test: A positive tuberculin reaction is only suggestive evidence of tuberculous arthritis. A negative reaction is strong evidence against the diagnosis.

Roentgenologic Observations.—In a typical case the roentgenogram will fail to show any changes in the early stages of the disease. The first signs consist of a haziness or cloudiness of the joint due to periarticular swelling, synovial effusion and thickening. The joint space is preserved until late. Pronounced decalcification of bone follows the earlier changes, and subsequently marginal erosion with thinning and interruption of the articular cortex is seen. In the advanced stages, as bone destruction progresses, sequestration, abscess and sinus formation may become visible. Calcium deposition and new bone formation are conspicuously absent. These roentgenographic changes are typical, but they are not diagnostic or specific, since similar changes may be seen in other types of arthritis.

Course and Prognosis.—Unless the disease is checked, tuberculous arthritis follows a protracted course of progressive destruction of bone and articular structures lasting several years. Remissions and exacerbations are usually observed. Recovery of normal joint function is rare. Pott's disease carries a decidedly graver prognosis than tuberculosis of a peripheral joint. In no type of arthritis is the mortality rate as high as in tuberculosis of the spine. In one analysis the death rate was 9.5 per cent among patients without extra-articular lesions and 54.5 per cent among those with active tuberculosis of other organs. It is anticipated that the use of streptomycin will improve the prognosis in certain cases.

Treatment.—The same principles which govern the treatment of tuberculosis elsewhere in the body apply when the bones and joints are infected. There is no substitute for prolonged care. The general resistance of the body should be enhanced by appropriate measures, such as rest, good care and nutritious diet.

Treatment otherwise consists of local surgical and mechanical measures and chemotherapy. Among orthopedic surgeons in this country there is a difference of opinion as to the indications or even the merits (i. e., the effect on duration and course of the disease, recurrences, complications and mortality) of surgical intervention as compared with more conservative treatment. Most authorities agree that operation is contraindicated in the presence of actively disseminating lesions elsewhere and that the chances of healing are poor unless the local process has become quiescent and stabilized and further destruction arrested. There is also general agreement that children should be treated preferably by nonoperative measures (traction, splints, braces) since epiphyseal growth is active.

Experience with streptomycin in tuberculous arthritis and spondylitis has been too limited to permit, at this time, a definitive evaluation of its efficacy. In some cases in which it was used, function was restored and healing was attained without surgical intervention; in other cases its preoperative and postoperative administration was attended by satisfactory results and no recurrences; in still others no beneficial effects were observed. Mild to moderate toxic symptoms develop in about half the cases. The bacilli often become resistant to the drug. Final opinion as to optimum dosage has not yet been formulated. At present 1.0 Gm. given daily in divided doses for ninety successive days is considered adequate treatment for the average case.

BRUCELLOSIS

Incidence.—The number of new cases of brucellosis in this country has been increasing steadily. In 1927, there were only 217 new cases; in 1937, 2,497 cases, and in 1947, 6,073 cases. The states that have the largest number of cases are Iowa, Illinois, Texas and Wisconsin. Approximately half of the patients with brucellosis experience arthralgia or myalgia, although only 10 per cent emphasize bone or joint pains as their chief complaint, and in but a fraction of this group does one find objective signs of osteoarticular involvement. Less than 100 cases of spondylitis have been reported in the literature. Permanent joint damage is rarely a result of brucellar infection.

Symptoms.—Brucellosis may assume an acute, chronic or latent form. The common symptoms are fever, chilliness, fatigue, sweating, malaise, generalized pains, headache, depression, nervousness and insomnia. In contrast to the numerous symptoms there are few physical signs. The spleen is enlarged in approximately one third of the cases. At the height of the systemic infection or during convalescence, joint symptoms may develop. Arthralgia or myalgia are common, but inflammatory joint changes are rare. The arthritis, when present, may be migratory, resembling rheumatic fever.

Diagnosis.—There are no pathognomonic clinical features of the systemic infection or the arthritis. A positive culture of blood or synovial fluid is conclusive, but the former is obtained in only 25 per cent of cases and the latter even more rarely. An agglutination test, complement fixation test, bactericidal test, skin test and opsonocytophagic test have been developed but are difficult technically and of limited value because of false negative as well as false positive reactions. No single one of these tests is diagnostic, but, if results of the agglutinin and skin test or other tests in addition are positive, the diagnosis is almost certain.

Prognosis.—The duration of brucellosis is variable and may be protracted. About 3 to 4 per cent of patients succumb to the infection. The arthritis does not influence the prognosis significantly. It is usually mild and rarely results in permanent deformity.

Treatment.—The disease is self limited and subject to spontaneous remissions and cure. Penicillin is ineffective. Streptomycin or sulfonamide drugs used alone may affect the bacteremia but do not substantially alter the course of the disease. It has been reported, on the basis of experimental studies and treatment of a relatively small group of patients with acute and chronic brucellosis, that the combined treatment with streptomycin and sulfadiazine yielded the most satisfactory results. The recommended dose is 0.5 Gm. of streptomycin every six hours given intramuscularly for seven days and sulfadiazine initiated simultaneously with an oral dose of 4.0 Gm. and 1.0 Gm. every four hours for two or three weeks. More recently, aureomycin was found more effective than streptomycin and sulfadiazine and may replace these two drugs in the treatment of brucellosis. Other antibiotics are being investigated.

RHEUMATIC FEVER

Not many years ago it would have been imperative, in a statement of this kind, to point out that rheumatic fever is not primarily a disease of the joints. This is no longer necessary, for the protean nature of the disease and the fact that carditis is its most important manifestation are now common knowledge not only to the physician but also to the layman. It is well known that rheumatic fever not infrequently occurs without any evidence of joint involvement. Nevertheless, the polyarthritis of rheumatic fever is one of the common and important forms of joint disease.

DIAGNOSIS

Rheumatic fever occurs most commonly in children and young adults but not infrequently also in the older age groups. The typical case is easily recognized by: (1) the polyarticular and migratory nature of the joint involvement, (2) the presence of other manifestations of rheumatic fever (such as carditis, subcutaneous nodules, pleuritis, erythema marginatum and chorea) and (3) the dramatic response to the antirheumatic drugs. The typical joint involvement is acute and is accompanied by a temperature of 101 to 104 F., leukocytosis and rapid erythrocyte sedimentation. The reaction to the hemolytic streptococcus agglutination test is uniformly negative, but the antistreptolysin-O titer is high in 90 per cent. Diagnosis is rarely difficult on clinical grounds. Occasionally, however, one encounters atypical cases, especially in adults, without other manifestations of rheumatic fever and in which the joint involvement is limited to only a few joints and tends to remain in those joints in subacute form several weeks in spite of antirheumatic medication. In these atypical cases the antistreptolysin titer provides additional diagnostic aid.

Differential diagnosis usually is easy. However, rheumatic polyarthritis may be confused with acute gout, early rheumatoid arthritis or arthritis of known microbial cause, such as that due to gonococcic infection. The course of disease and the diagnostic features enumerated usually make the correct diagnosis apparent. Response to therapy is particularly informative, for gout responds readily to colchicine whereas rheumatic fever does not, and the latter responds promptly to antirheumatic drugs in contrast to no or slight response in the case of rheumatoid arthritis and gonococcic arthritis. (It must be emphasized that the diagnostic feature of this therapeutic test is the effect on pain and local inflammation rather than on fever, for sufficiently large doses of antirheumatic drugs will cause a sharp drop in fever due to any cause.)

TREATMENT

Therapeutically, the essential problem in rheumatic fever is the carditis. The joint involvement does not lead to permanent damage, and adequate doses of the antirheumatic drugs will cause a prompt subsidence of the arthritis. Acetylsalicylic acid and sodium salicylate are the drugs of choice. An adequate dose is 1 Gm. (grains 15) every hour for six to ten doses the first day or two with gradual reduction at the rate of 1 or 2 Gm. daily unless arthritis returns. Doses of this size may occasionally cause vomiting, and, therefore, medication should be stopped temporarily at the first sign of nausea.

Treatment of carditis can be merely mentioned here. Essentially it is a matter of complete bed rest as long as there is any evidence of continuation of the active rheumatic infection even in low grade form. The weight of evidence indicates that the antirheumatic drugs do not have any curative effect on carditis. The following are useful criteria in deciding when the patient may be allowed out of bed: (*a*) normal temperature and leukocyte count for ten days in the absence of antirheumatic drugs; (*b*) erythrocyte sedimentation rate well on its way to return to normal; (*c*) disappearance of all rheumatic manifestations, such as subcutaneous nodules and skin rashes, and (*d*) atrioventricular conduction time within normal limits.

PREVENTION

The most important recent advances have been in prophylaxis. It is now thoroughly established that recurrences of rheumatic fever can be prevented by the prevention of the hemolytic streptococcic infections which incite them. This can be accomplished in most instances by giving daily doses of sulfadiazine prophylactically throughout the year to children who are known to be susceptible to rheumatic fever. The recommended dose is 0.5 Gm. (grains 7½) once daily for children weighing less than 110 pounds (49.9 Kg.) and 0.5 Gm. (grains 7½) twice daily for those weighing over 110 pounds. Of course, the physician who has a patient on this regimen has a heavy responsibility to watch for possible toxic effects of the drug. During the first five weeks of treatment the child must be observed carefully, with weekly examinations including total leukocyte and differential counts to warn of the possible appearance of granulocytopenia. Fortunately, important toxic reactions are rare and occur in the first five weeks of treatment. Hence, the patient need be examined only at monthly intervals thereafter. Recently, penicillin has been tried in place of the sulfonamide compounds in order to obviate even the slight danger of toxic reactions inherent in the use of the latter. The recommended dose is 100,000 units given by mouth once daily, forty-five minutes before breakfast. Sufficient experience has not yet accumulated to establish the usefulness of penicillin in the prophylaxis of rheumatic fever; however, all indications to date are that it will be as effective as the sulfonamide compounds and that it is probably the drug of choice in view of the lack of important toxic reactions. Unfortunately, the sulfonamide compounds and penicillin are useless once an attack of rheumatic fever has started and they also fail to prevent an attack if given after the inciting hemolytic streptococcic infection has begun.

(To Be Continued)

Clinical Notes, Suggestions and New Instruments

PAPILLARY CYSTADENOCARCINOMA OF THE OVARY

Treated with Large Doses of Testosterone Propionate; Report of a Case

BYRON D. St. JOHN, M.D.
Port Washington, N. Y.

On Oct. 27, 1947, a 43 year old woman was seen with a chief complaint of swelling of the lower part of the abdomen for the previous six weeks and tenderness of the abdomen. The family history revealed that her mother had had cancer of the breast removed seven years previously and was living and well. The patient's past history revealed that she had had the usual diseases of childhood. She had had ventral suspension in 1932. Three months prior to examination she had a fibroadenoma removed from the left breast.

The results of the physical examination were normal except for the observations of the abdomen and pelvis. There was a constant rolling and gurgling of gas; the lower portion of the abdomen was swollen and distended, and the skin appeared stretched and flaky. The liver could not be definitely felt on palpation, but was percussed at the costal margin and measured 7 cm. at the midclavicular line.

Inspection revealed that the mucous membrane of the labia was normal. On digital examination the pelvic floor was found to be relaxed, the cervix was pointing toward the symphysis and was soft and open. In the hollow of the sacrum was a soft mass that felt like a pregnant uterus. Further examination was suspended pending results of an Ascheim-Zondek test. The result of this test was negative. Examination then revealed a normal uterus anterior to the mass described, and a diagnosis of ovarian cyst was made. The patient was sent to the hospital for surgical treatment.

On November 11 Dr. George Granger removed a large doughy-feeling left ovarian cyst and did a hysterectomy; he also removed the normal-appearing right ovary. The pathologic diagnosis was papillary cyst adenocarcinoma of both ovaries. The patient made an uneventful operative recovery, and on November 21 high voltage roentgen therapy was started. It was planned to give her thirty-two treatments comprising a total dose of 2,250 r to each of the four ports. However, the treatments had to be discontinued on December 17 because the patient was too sick to go to the doctor's office.

The patient became worse rapidly, and on December 22 two hard masses, 4 cm. in diameter, were felt in the right lower quadrant of the abdomen. The patient was having crampy pain and was vomiting. She was sent to the hospital for terminal care with a diagnosis of partial intestinal obstruction. A consultation was held, and it was decided that no surgical treatment was indicated. The patient was given morphine every four hours. When this no longer relieved her she was given morphine and scopolamine® every four hours. Dr. Norman Treves was called in consultation and suggested testosterone propionate, 100 mg. three times a week. The patient was moaning constantly and was semicomatose and moderately cyanotic. During this time Wangenstein drainage was operating successfully and her temperature remained normal.

The intestinal tract was emptied by the use of enemas and colonic irrigations, and on December 29 sixteen large bowel movements were reported. Trouble with water balance was now encountered, and edema developed while the patient was receiving 1,500 cc. of isotonic sodium chloride solution intravenously in twenty-four hours. Blood chlorides were 745 mg. per hundred cubic centimeters. Dextrose and sterile water were used, and the water balance was then maintained.

During this time there had been great distention of the abdomen, making it impossible to feel any masses in the abdomen. On Jan. 15, 1948, the abdomen was flat. The masses previously reported in the right lower quadrant were not palpable. On vaginal examination the cervix was fixed and a large mass behind the cervix was noted.

Pelvic examination by Dr. George Granger on January 29 revealed that in the outlet there was no hypertrophy of the clitorus; there was slight relaxation of the posterior wall. Cervical examination showed no erosion or polyps. The cervix pointed toward the hollow of the sacrum. A solid mass, the size of an orange, was felt in the cul-de-sac and extended out to the left, toward the sigmoid, as a shelf. Dr. Granger stated the belief that this mass was due to implants. The right adnexal region was essentially normal.

The patient had now received 1,200 mg. of testosterone propionate.

On February 4 the patient was discharged from the hospital, weighing 90 pounds (41 Kg.). The testosterone propionate therapy was continued at home, and the patient had a tremendous appetite and rapidly gained in strength. On March 5, one month after discharge from the hospital, the patient weighed 107¾ pounds (49 Kg.). She reported that she had unusual energy and an enormous appetite. She complained of some irritation in the region of the clitorus. The clitorus was now found to be enlarged. She complained that her breasts were small and were steadily decreasing in size and that a beard was growing, which had to be shaved each day. The moustache did not require shaving. At this time she had received 2,600 mg. of testosterone propionate.

On March 15 she weighed 111 pounds (50 Kg.) and reported that she had unusual energy, walking 5 miles a day. Her chief complaint about the testosterone propionate was that her voice wavered and cracked like an adolescent boy and that her face was broken out in acne. At this time the patient reported that she had noticed a lump in the epigastrium. The liver edge was felt 2 fingerbreadths below the costal margin, measured 10.5 cm. at the midclavicular line and felt firm. A hard nodule was felt on the surface of the liver.

On April 6 it was noted on pelvic examination that the cervix was slightly movable and that the mass in the cul-de-sac was smaller. The patient now noted that her hair was falling known to be susceptible to rheumatic fever. The recommended dose is 0.5 Gm. (grains 7½) once daily for children weighing less than 110 pounds (49.9 Kg.) and 0.5 Gm. (grains 7½) twice daily for those weighing over 110 pounds. Of course, the physician who has a patient on this regimen has a heavy responsibility to watch for possible toxic effects of the drug. During the first five weeks of treatment the child must be observed carefully, with weekly examinations including total leukocyte and differential counts to warn of the possible appearance of granulocytopenia. Fortunately, important toxic reactions are rare and occur in the first five weeks of treatment. Hence, the patient need be examined only at monthly intervals thereafter. Recently, penicillin has been tried in place of the sulfonamide compounds in order to obviate even the slight danger of toxic reactions inherent in the use of the latter. The recommended dose is 100,000 units given by mouth once daily, forty-five minutes before breakfast. Sufficient experience has not yet accumulated to establish the usefulness of penicillin in the prophylaxis of rheumatic fever; however, all indications to date are that it will be as effective as the sulfonamide compounds and that it is probably the drug of choice in view of the lack of important toxic reactions. Unfortunately, the sulfonamide compounds and penicillin are useless once an attack of rheumatic fever has started and they also fail to prevent an attack if given after the inciting hemolytic streptococcic infection has begun.

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On April 6 it was noted on pelvic examination that the cervix was slightly movable and that the mass in the cul-de-sac was smaller. The patient now noted that her hair was falling from her head, and she feared that she was going to become bald. She also noticed a tremendous increase in the hair on her legs and pubis. She now weighed 115 pounds (52 Kg.). On April 27 the liver measured 12 cm. at the midclavicular line and the epigastric mass had increased in size. The dose of testosterone propionate was increased to 400 mg. a week given intramuscularly. Visible peristalsis was observed at this examination.

On May 10 the patient weighed 119 pounds (54 Kg.). Her usual weight was 110 pounds (50 Kg.). Her appetite was enormous. Another nodule had appeared on the liver, and it was noted that the cervix had become as soft as the cervix of pregnancy and that it was freely movable. The mass and shelf previously described were now barely palpable. The patient had received 5,600 mg. of testosterone propionate by the intramuscular route, and her main complaint about it was that her voice was so weak she could not call her children or talk on the telephone.

The patient had had constant trouble with her bowels since leaving the hospital three and one-half months previously. She had periods of constipation for several days, which were relieved by small doses of magnesia magma, liquid petrolatum and enemas.

On examination on May 25, two more small nodules were felt in the liver. The cervix was even softer than at the last examination and was freely movable, and the examining finger could be swept completely around the cervix without encountering the mass or shelf previously described. It seemed that the pelvic mass was diminishing in size but that the liver was increasing in size.

On June 14 the patient had had crampy abdominal pains and no bowel movement for six days. A barium sulfate enema revealed an obstruction just above the rectosigmoid, at which point there was total obstruction to the ascending flow of the barium mixture. The patient had received 8,100 mg. of testosterone propionate, and her main complaint concerning it was the weakness of her voice. With diligent nursing care the patient's intestinal tract was emptied. She went on two weeks' vacation away from home by herself and received no attention except the intramuscular injections of testosterone propionate. By August 2 the patient had received 10,000 mg. of testosterone propionate by the intramuscular route. Her liver measured 19 cm. at the midclavicular line; the masses in the liver had coalesced and many small new ones had appeared. The examination of August 14 revealed that the masses in the liver were rapidly increasing in size. On August 25 the patient had complete obstruction. She was sent to the hospital again for terminal care.

The report of September 10 revealed that the patient had had no stool for two and one-half weeks. The abdomen was extremely distended. Her spirits remained high, and she enjoyed her food. Results of repeated enemas were unsuccessful. Because she was not becoming worse as patients usually do at this time, it was decided to do an exploratory laparotomy in an attempt to relieve the obstruction. Operation was performed on September 12. It was not possible to relieve the obstruction. The patient died five hours after the operation.

The total dose of testosterone propionate by the intramuscular route in this case was 14,100 mg. given over a period of nine and one-half months.

POSTMORTEM OBSERVATIONS

Dr. Frank Inda did the postmortem examination.

Gross Pathologic Observations.—The liver weighed 3,000 Gm. The capsular surface showed multiple umbilicated nodules varying in size from 1 to 6 cm. Repeated sections showed massive areas of tumor replacement up to 10 cm. in diameter. Gastrointestinal tract: The serosal surface of the bowel was glistening and failed to show any implants except in the region of the obstruction in the rectosigmoid.

Microscopic Observations.—A metastatic papillary adenocarcinoma was found in the liver and a metastatic carcinoma (miliary lymphatic spread) of the lung, with peripheral atelectasis. Foreign material was aspirated. Examination of the lymph nodes showed metastatic papillary adenocarcinoma. In the gastrointestinal tract there were adenocarcinomatous implants with infiltration of the rectosigmoid. Reticulum cell hyperplasia was observed in the spleen.

SUMMARY

A case of papillary cystadenocarcinoma of the ovary is presented which was treated surgically and with very large doses of testosterone propionate. After the testosterone propionate therapy was started, at which time the condition was considered terminal, the patient enjoyed nine months of vigorous life. She had greater energy and a better appetite than at any other time in her life. Her chief complaint against the testosterone propionate therapy was the weakness of her voice. The trouble with her water balance was thought to be due to the large doses of testosterone propionate, but this was easily handled. The masses in the pelvis and lower part of the abdomen seemed to recede, while the metastases in the liver steadily increased in size.

Addendum.—Pelvic examination of the patient on April 27, 1948, revealed a decrease in the size of the mass in the left adnexal region extending toward the sigmoid.

ACTIVE PULMONARY TUBERCULOSIS TOGETHER WITH ADDISON'S DISEASE

Successfully Treated with Streptomycin and Adrenal Cortex Extract

MARSHALL C. CHENEY, M.D.
Berkeley, Calif.

Case histories of dramatic recovery from active pulmonary tuberculosis as a result of treatment with streptomycin still are rare enough to warrant reporting. Also, in this case Addison's disease had set in and the patient was rapidly becoming worse. Since Addison's disease is so uniformly fatal, possibility of cure by means of streptomycin represents an important gain in the means of defense against this devastating disease.

Reading over the various reports on all types of tuberculosis treated with streptomycin, one notes the extremely cautious conclusions, such as "Streptomycin should be reserved in pulmonary tuberculosis only for patients not doing well on the regular (slow-going) sanatorium regimen of rest, lung deflation and the like." It is evident that much wider study of streptomycin alone and streptomycin in combination with other remedies (para-aminosalicylic acid, "promin" [sodium p,-p'-diaminodiphenylsulfone-N,N'didextrose sulfonate]) is needed before conclusions can be drawn.

My patient was treated successfully at home, after failure of sanatorium care and after the case had been regarded as hopeless. The newer remedies raise the question, "Is the treatment of tuberculosis in the future to be at home rather than the prolonged old style sanatorium care?"

Admitting that all patients do not respond favorably to streptomycin and that some have had toxic damage (at least from the old high dosage treatment without protection of the nerve structures by thiamine), the unbelievable improvement in this patient, after being regarded as incurable, makes it fair to question the generally accepted conclusion of tuberculosis specialists that streptomycin should be reserved for tuberculosis that is not responding well to the old regimen. Obviously, this patient could have been saved over a year of sanatorium care and from approaching death had streptomycin been administered at the outset. Should not every case of active tuberculosis have a trial of streptomycin therapy first?

REPORT OF A CASE

The patient, a young girl aged 22, was sent to me in August 1946 because she had been coughing a great deal, especially at night, for the previous two months. The girl reported that there had been considerable sputum at first, but much less at the time of examination.

The roentgenogram of the lungs showed active tuberculosis of the upper lobe of the left lung, with a thick-walled cavity, 3 cm. in diameter. The remainder of the lungs was normal. The sputum contained numerous acid-fast bacilli. In spite of the observations, the girl appeared in excellent condition, was well nourished and was not feeling sick, though she felt tired, apparently from the intensive course she was taking at a local business school.

Checkup on the family (father, mother, brother), including roentgenograms of the chest, showed all in good health, without a trace of tuberculosis.

The girl was sent immediately to a lung specialist in San Francisco, Dr. Sidney J. Shipman, who placed her in Ross Sanitorium in Marin County, Calif. Routine rest was started; the left lung was partially collapsed by pneumothorax, but adhesions prevented a complete result. On this account, a series of operations was started, to cut the adhesions.

During the winter of 1946, and especially in the spring of 1947, the reports from the sanatorium were not good. In spite of sanatorium care, the tuberculous infection not only continued active in the left lung, but also appeared in the right lung.

In addition to the spread of the tuberculous process to the right lung, some disturbing digestive symptoms had appeared and were interfering with eating and hence maintenance of a good weight. The digestive upsets (intense nausea and vomiting and, later, pain) at first came at the onset of the menstrual period and gradually lasted longer, until the patient was eating almost nothing for as long as six or seven days at a time, often vomiting the blandest foods.

There was a peculiar nervousness along with the digestive upsets, which led to the idea that there might be a purely psychic factor associated with sanatorium life. However, a visit home (spring and summer, 1947) under her mother's supervision did not influence the digestive upsets, which began to appear even without reference to the catamenia.

The patient lost more weight during the summer, finally could not take any milk and frequently vomited her meals, no matter how small the amount or how carefully selected. Her weight gradually dropped from about 135 pounds (61 Kg.) to 98 pounds (45 Kg.), and it became evident that unless the digestive difficulty, as well as the advancing tuberculosis in the lungs, could be stopped, she could not recover.

She was sent home again from the sanatorium but was soon admitted to St. Joseph's Hospital in San Francisco for review of the tubercular condition. Feeling that the infection had gotten into the abdomen, and because of the close association of the digestive upsets with the catamenia, a gynecologist, Dr. Cooley, was called into consultation. He examined the pelvis and found no definite tuberculosis of the pelvic organs.

Again she was sent home with instructions to spare no effort to solve the digestive difficulty. Feeling that tuberculous ulceration of the bowel might be causing the serious symptoms, she was placed in Alta Bates Hospital in Berkeley for gastrointestinal examination, partial obstruction of the bowel being carefully looked for. No evidence of tuberculosis of the bowel could be found at any point and no signs of obstruction, except some spasm in the second portion of the duodenum which seemed to hold food back somewhat. A surgeon, Dr. Dexter Richards, was called into consultation and, observing the flat abdomen and so little evidence of organic obstruction, advised against any surgical treatment.

Again the patient was sent home, but review of all the possibilities now suggested that Addison's disease was a factor in the case. There was no question about her having tuberculosis, at least in the lungs. The digestive upsets were consistent with Addison's disease, and the nervousness was exactly of the type described as occurring in this illness. In addition, she was having exhaustion spells in which she suddenly felt as if she were dying. The systolic blood pressure was ranging from 110 to 90. The absence of tuberculosis in the gastrointestinal tract, pelvis and kidneys aided in pointing the way to tuberculous involvement of the adrenal glands. However, no calcification was evident in roentgenograms of the adrenal areas.

Treatment with injection of adrenal cortex extract ("eschatin") and with streptomycin was begun. Improvement was evident within a week; the digestive upsets gradually lessened, and the diet was normal by the time the three months' streptomycin therapy was complete. Treatment was started with the original full dose of streptomycin, i. e., 1 Gm. a day, in divided doses at the beginning, and the dose cut to 0.5 Gm. a day during the latter part of the three months' treatment, because of general agreement that the smaller dose would be just as effective for the tuberculosis and much less likely to cause toxic symptoms. This patient displayed no toxic symptoms even on full dosage (possibly due to large doses of vitamin B), but she was so emaciated that it was extremely difficult to find sufficient sites for the injections.

All injections were administered by the patient's mother. Not one injection was missed, and much effort was put into selection and preparation of foods that might possibly agree. As the girl's appetite improved and she began to gain weight, extra effort was put into the supplementary feeding.

By the spring of 1948, it was evident that a cure had been accomplished. The roentgenograms of the lungs now showed no activity of the tuberculosis, the cavity had disappeared and there was no activity found on the weekly check-ups by the lung specialists in San Francisco. Pneumothorax of the left lung and bed rest were continued, though the patient's strength had returned. Finally, the time up and about during the late spring and summer, i. e., from one or two hours to four or more hours, were gradually increased. Some of this time was spent outdoors in sunlight, which was permitted because she felt better after sunning herself. Also, a sun lamp was used all through the winter and early spring.

Her weight by summer was up 34 pounds (15 Kg.), and she was tanned, active and in good health. Interest in normal girls' social pursuits returned. All symptoms of her sickness had disappeared. The only remedies now were some capsules of cortical adrenal hormone (now replacing the injections of adrenal cortex extract) and some vitamin tablets. She spent the summer at an altitude (Tahoe) and in September 1948 reported herself in good condition. The periodic reviews by the lung specialists support the idea that the tuberculosis has been eradicated.

Close observation will continue at least another year. Meanwhile, the lung specialist permits the cautious diagnosis, "presumably arrested tuberculosis," at the same time recognizing the miraculous improvement.

NOTE: At the time of last examination (Jan. 7, 1949) the patient was in excellent condition. Roentgenograms revealed no active tuberculosis of the lungs. Periodic examinations (every two weeks) by Dr. Shipman have revealed no activity.

The Salpêtrière.—The greatest neurologist of all time, Charcot's name will always be associated with his old hospital in Paris, the Salpêtrière. The hospital got its queer name from the fact that it once served as an arsenal and thus became a center for the storage of saltpeter, the essential ingredient of gunpowder. Sometime in the 17th Century it was converted into an asylum for old women and later, after Pinel's time, into a hospital for the mentally disturbed, epileptics and patients with a wide variety of nervous diseases. To this hospital in 1848 came the young Charcot as a medical student, the son of a professional carriage builder who had considerable artistic talent, an inheritance that became well marked in his famous son. . . . After four years of internship at the Salpêtrière, Charcot practiced medicine for a few years before returning in 1862 to his old hospital as one of the chiefs of medical service. . . . His crowning achievement in neuropathology was his studies in cerebral localization. . . . His name is remembered in the artery of Charcot, Charcot's disease, amyotrophic lateral sclerosis and the changes in the joints in tabes dorsalis. . . . He was, indeed, the founder of modern neurology and his studies in cerebral localization led directly to the development of neurosurgery.—Henry R. Viets, The History of Neurology in the Last One Hundred Years, *Bulletin of the New York Academy of Medicine*, December 1948.

Council on Physical Medicine

REPORTS OF THE COUNCIL

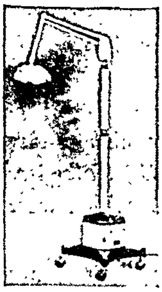
The Council on Physical Medicine has authorized publication of the following reports: Howard A. Carter, *Secretary.*

GENERAL ELECTRIC MODEL H PRESCRIPTION ULTRAVIOLET LAMP ACCEPTABLE

Manufacturer: General Electric X-Ray Corporation, 4855 W. McGeoch Avenue, Milwaukee 14.

The General Electric Model H Prescription Ultraviolet Lamp is a device for the therapeutic administration of ultraviolet radiation, and includes not only the burner itself but also a housing with reflector and shutter, an adjustable "floating arm" and an upright stand borne on four casters.

The lamp proper is of the high pressure mercury vapor hot-quartz Uviarc type which emits a spectrum rich in wavelengths throughout the therapeutic zone of ultraviolet from 2,200 to 3,200 angstrom units. It requires 110 to 120 volts of alternating current for operation. The Model H Type 1 lamp has a 360 watt burner, and the lamp itself operates on 115 volt 60 cycle and draws 9 amperes and 1040 watts. The Model H Type 2 lamp has a 250 watt burner and can be supplied to operate from either 115 volt 60 cycle, drawing 7.7 amperes and 900 watts, or 115 volt 25 cycle, drawing 9.9 amperes and 1,100 watts.


G. E. Model H Prescription Ultraviolet Lamp.

The height of the apparatus as a whole is given as 154 cm. (60½ inches) and the width as 42 cm. (16½ inches). The weight is 24 Kg. (52 pounds). The shipping weight is 39 Kg. (85 pounds). Accessories include two pairs of goggles for protection against ultraviolet light.

In a test it was found that the minimum erythemal dosage averaged 75 to 90 seconds at 18 inches (45.7 cm.) from the Model H Type 2 250-watt lamp. The Model H Type 1 360-watt lamp will produce the same reaction in 50 to 65 seconds.

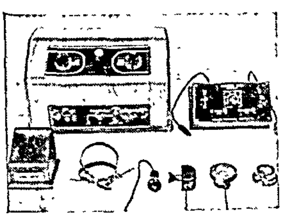
Evidence was obtained from sources acceptable to the Council that the lamp complies with the minimum requirements for acceptance both in spectral quality and total intensity, that its clinical performance was as claimed and that the lamp was convenient to move and operate.

The Council on Physical Medicine voted to include the General Electric Model H Prescription Ultraviolet Lamp in its list of accepted devices.

SONOTONE AUDIOMETER, MODEL 21, ACCEPTABLE

Manufacturer: Sonotone Corporation, Elmsford, N. Y.

The Sonotone Audiometer, Model 21, is an instrument designed to test the sense of hearing by supplying pure tones at frequencies from 125 to 8,192 cycles per second at various degrees of loudness. It is contained in a walnut-finished case 27 by 28 by 48 cm. (10½ by 11⅛ by 19 inches). Accessories include: 2 air conduction receivers and cords; 1 bone conduction receiver and cord; 1 control unit, with switching arrangements to allow testing with a receiver on each ear; 1 microphone and cord; 1 single headband; 1 double headband; 1 power cord, and 1 signal switch and cord. Without the accessories, the audiometer weighs 10.9 Kg. (24 pounds). With them, it weighs 14 Kg. (31 pounds), and the shipping weight is 30 Kg. (66 pounds). Its power consumption is 50 watts (0.4 ampere) at 115 volts; it operates on either direct or alternating current.


Sonotone Audiometer, Model 21

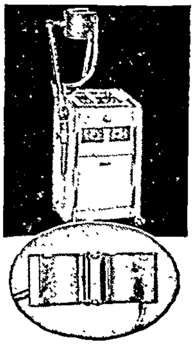
It was tested under clinical conditions in a laboratory acceptable to the Council, and was reported to be reliable and durable.

The Council on Physical Medicine voted to include the Sonotone Audiometer, Model 21, in its list of accepted devices.

FISCHER DELUXE SHORT WAVE DIATHERMY MODEL 400 ACCEPTABLE

Manufacturer: H. G. Fischer and Company, 9451 West Belmont Avenue, Franklin Park, Ill.

The Fischer DeLuxe Short Wave Diathermy Unit, Model 400, is an apparatus designed to administer diathermy within the wave bands allocated by the Federal Communications Commission (Type Approval D-479, 11.06 meters, 27.120 megacycles) by induction electrode and induction cable. It can also be used for coagulation and cutting in electrosurgical procedures. The apparatus as a whole is in the form of a console or cabinet mounted on four casters and stands 86 cm. high (34 inches). The other dimensions are 86 by 51 cm. (34 by 20 inches), and the weight is 47 Kg. (103 pounds). The shipping weight is 78 Kg. (167 pounds). Accessories include a flexible arm assembly and an adjustable induction electrode. For operation, a 120 volt alternating current is needed, and 900 watts are drawn.


Fischer De Luxe S. W. Dia. Unit, Model 400.

The apparatus has been accepted for listing by Underwriters' Laboratories, Inc. Measurements of power output were made by the lamp load method in a laboratory acceptable to the Council, and the highest figure obtained was 310 watts.

The Council on Physical Medicine voted to include the Fischer DeLuxe Short Wave Diathermy Model 400 in its list of accepted devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

Austin Smith, M.D., *Secretary.*

PROTEIN HYDROLYSATES (See New and Nonofficial Remedies 1948, p. 416).

The following dosage forms have been accepted:

Abbott Laboratories, North Chicago, Ill.

Solution Aminosol 5% W/V: 500 cc. and 1,000 cc. infusion solution containers. A modified fibrin hydrolysate 5 per cent. Each 100 cc. represents 5 Gm. of protein equivalent to about 20 calories.

Solution Aminosol 5% W/V with Dextrose U.S.P. 5% W/V: 500 cc. and 1,000 cc. infusion solution containers. A modified fibrin hydrolysate 5 per cent with dextrose 5 per cent. Each 100 cc. represents 5 Gm. of protein and 5 Gm. carbohydrate equivalent to about 40 calories.

Solution Aminosol 5% W/V with Dextrose U.S.P. 5% W/V and Sodium Chloride 0.3%: 1,000 cc. infusion solution containers. A modified fibrin hydrolysate 5 per cent with dextrose 5 per cent and sodium chloride 0.3 per cent. Each 100 cc. represents 5 Gm. of protein and 5 Gm. of carbohydrate equivalent to about 40 calories.

MERCUROPHYLLINE INJECTION-U.S.P. (See New and Nonofficial Remedies 1948, p. 319).

The following dosage form has been accepted:

The Smith-Dorsey Company, Lincoln, Neb.

Solution Mercurophylline: 1 cc. and 2 cc. ampuls.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 16, 1949

INDEXES AND ABSTRACTS OF MEDICAL LITERATURE

Since the end of World War II attention has been focused on the potential development of an index to the medical literature of the world sufficiently comprehensive to serve the needs of investigators, teachers, practicing physicians and all others interested in medical science. Apparently the scientific literature of the world includes some 25,000 publications; certainly there are some 6,000 of these containing material of pertinent interest to the medical profession.

The Index Medicus has been published by the American Medical Association under the title of the Quarterly Cumulative Index Medicus for many years. Recently its appearance has been delayed because of difficulties with the printing trades, difficulties in securing medical periodicals from all over the world and the maintenance of a system of selection which would supply all that is important to the various groups that have been mentioned. Under the auspices of the Division of Medical Sciences of the National Research Council a committee has been established which is now investigating every aspect of the indexing problem. Its ultimate goal may well be the publication of an index once each month of the important medical literature of the world in a form suitable to the types of readers mentioned, other users and also to librarians. The publication of a complete index to all medical literature that might be useful for all these groups would represent a cost so great that support for it is at present not visible. The committee is considering the needs of various groups and endeavoring to arrive at recommendations which will lead to progress.

In 1947 the British Medical Association began publication of two periodicals devoted to abstracts of medicine and to surgery, obstetrics and gynecology; it is considering other publications to supplement these two publications. An attempt is not made to abstract all articles published in all medical journals. A selection is made of periodicals considered worthy of study—approximately 1,000—and from these are chosen for abstract articles judged to be useful to medical readers.

In 1947 the government of the Netherlands subsidized the publication of a monthly abstracting service of articles from every available medical journal in the world under the title *Excerpta Medica.* This is published in fifteen sections and covers the whole field of clinical and experimental medicine. Many hundreds of abstracters throughout the world cooperate in this project. The organization, which is under the general editorship of M. W. Woerdeman, professor of anatomy and embryology at the University of Amsterdam, is growing in scope. Already many of the sections are in process of developing their third volume. Recently the *Excerpta Medica* was reorganized on a not for profit basis; a conference to be held by UNESCO in June will determine the extent to which that agency can support a further development of the various abstract services now available. At present physicians will find the *Excerpta Medica* the most comprehensive and prompt abstracting of the medical literature of the world thus far available.

Information indicates that German publishers are considering the possibility of reviving the *Zentralblätter* and similar abstracting services in German which were published previously to the war.

In the United States the current medical literature department of THE JOURNAL makes available numerous abstracts each week. The specialized periodicals of the American Medical Association and several others devoted wholly to abstracts of medical literature are also available for subscription by American readers. The International Abstract of Surgery, which appears monthly in *Surgery, Gynecology and Obstetrics,* is also one of the most comprehensive and useful abstract services for use by surgeons.

Obviously great sums of money are being spent by many different agencies in an effort to reach a much needed goal. Perhaps under the leadership of the World Medical Association, the World Health Organization or UNESCO, or by a combined committee developed from all of these groups, some coordination may be secured which would lead to a more comprehensive product than is now in sight. The American Medical Association is participating in these conferences, since the Association is represented in all the world groups that have been mentioned.

More recently the Editor of THE JOURNAL has been associated by action of the Board of Trustees with the publication of *Excerpta Medica.* This association is designed to bring about a system of the type so badly needed. Particularly in view is a possible coordination between abstracting services and indexing. As soon as the publication of the Quarterly Cumulative Index Medicus is brought up to date, the editors hope to indicate in the Index the references to abstracts that will be easily available in *Excerpta Medica.* This should enhance the value of both the Index and *Excerpta Medica.*

Medical periodicals exist by the support of physicians and medical institutions. The publication of the Index Medicus has been carried on by the American Medical Association for many years with a considerable contribution from the funds of the Association. *Excerpta Medica* likewise is still published at a loss which could be largely overcome if enough physicians gave their support either to the total publication or to the individual sections in which they happen to be interested. Since medical progress is dependent on the rapid dissemination of medical information, this important publication merits support.

LICENSURE OF FOREIGN MEDICAL GRADUATES

The statement issued by the Committee on Foreign Medical Credentials which appears elsewhere in this issue offers a statesmanlike approach to the problems involved in the licensing of foreign-trained physicians. The Committee, which is an unofficial body sponsored by the Council on Medical Education and Hospitals and composed of invited representatives from a number of organizations, has summarized the principal problems and has presented recommendations as to how they may be solved.

The quality of education a physician receives during his medical school years is as important in determining his fitness to practice medicine as is his performance on licensure examinations. These, of necessity, are limited in the extent to which they can test his knowledge and skill. In licensing graduates of American and Canadian medical schools, the state licensing boards for many years have had the benefit of the findings of thorough periodic surveys of these schools carried out by the Council and the Association of American Medical Colleges. It has been beyond the resources of these bodies to make similar studies of the medical schools in other parts of the world. Other agencies have not been discovered which can furnish adequate information. Many state boards, therefore, have been reluctant to admit foreign-trained physicians to examinations. This reluctance has been justified because medical education in many foreign countries has been inferior to medical education in this country. In many of the countries that previously maintained high standards, medical education has deteriorated during the past fifteen to twenty years as the result of political upheavals, the crushing impact of the war and the unsettled economic and political conditions that have prevailed since the close of the war.

The Committee has drawn attention to these problems but has also recognized that in some foreign countries high standards of medical education comparable to those in the United States have been maintained. The Committee therefore has stated that the various agencies concerned with the problem should unite their resources and devise a satisfactory method for securing reliable information concerning foreign medical schools at the earliest possible date. When such information is obtained, it should be possible for the accrediting agencies to prepare a list of foreign medical schools whose graduates may be considered to have received training comparable to that offered by medical schools in this country. It would then seem reasonable that the state boards and the National Board of Medical Examiners admit graduates of these schools to examinations, provided they can demonstrate sufficient familiarity with recent scientific advances, with the practices and custom of American medicine and with the English language. The Council on Medical Education and Hospitals will probably give major consideration to this suggestion at its next meeting.

The Committee is to be congratulated on the statement which it has prepared. This statement should receive wide attention from the public as well as the state licensing boards. Undoubtedly it will prove to be an extremely useful instrument for promoting better understanding and better management of a problem that demands an intelligent and enlightened solution.

SALARY MINIMUMS FOR PUBLIC HEALTH PHYSICIANS

The Executive Board of the American Public Health Association[1] has recently released a statement of recommendations of minimum salary scales for physicians in full time public health work. Five salary grades are recommended:

1. Physicians employed in a full time position for training in public health should receive an annual salary of at least $6,000 if they have an M.D. degree from a recognized medical school, have completed an internship and are eligible for licensure in the state in which they work.

2. Physicians employed in a full time position as a clinician, health officer of a small unit, or an assistant administrator, should receive an annual salary of at least $8,500 if they have the following basic qualifications:

(*a*) A degree of Doctor of Medicine from a recognized medical school.

(*b*) One year of internship and eligibility for licensure.

(*c*) A master's degree in public health (which includes some field experience) or demonstrated knowledge and experience equivalent to that represented by this degree.

3. Physicians with these basic qualifications who in their past experience have shown administrative ability should receive an annual salary of at least $10,000 if they carry the responsibility for administering a single program in a state health agency or a large local health agency (e. g., program for cancer control, mental hygiene, tuberculosis or crippled children) or serve as health officer of a moderate-sized local health unit, or carry equivalent responsibility.

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[1] Clearing House on Public Health Salary Information, editorial, Am. J. Pub. Health **39**: 376 (March) 1949.

4. Physicians with the basic qualifications and demonstrated ability to administer responsible public health programs should receive an annual salary of at least $12,000 if they carry heavy responsibility such as administering multiple programs in a state health agency (e. g., directors of local health administration preventable disease control), or serve as health officer of a large local health unit or carry equivalent responsibility.

5. Physicans with these basic qualifications and outstanding demonstrated ability to administer public health programs should receive an annual salary of at least $15,000 to $20,000 if they carry great responsibility in positions such as the health officers and deputies of our states, major cities and very large local units carry.

An acute shortage of personnel now exists, partly due, no doubt, to the low salaries paid to public health officials in comparison with net income received by most general physicians. A survey by the Placement Service of the American Public Health Association showed on Oct. 1, 1948: 766 vacant positions listed in contrast to 91 applicants for these positions. One recent study [2] has demonstrated that $9,819 in 1948 is only the equivalent of $5,000 in 1939 in purchasing power for a family of four. Salaries of public health personnel have not increased proportionately to wages in other fields. Wages in manufacturing industries increased by 100 to 140 per cent between 1940 and 1948. The median salary of full time public health physicians in state agencies in 1948 was $6,000 to $6,400. This is much lower than net incomes of most general practitioners in the United States.

Emphasis on the importance of public health programs, and the scope and activities of public health physicians, have greatly increased during the past ten years. A specialty board, The American Board of Preventive Medicine and Public Health, has been recently established, thus giving recognition to physicians in public health similar to that for specialists in other fields of medicine.

The undoubted importance of the work of public health physicians to the health of the people of the United States while recognized theoretically has never been adequately compensated. The outstanding reason for this is, of course, that such work is essentially impersonal, concerned not with individuals but with people in the mass and with environmental and social conditions as causes of disease. An extremely significant part of the present high level of health of the American people is due to outstanding successes in the preventive approach to disease by workers in public health.

Salary levels on which these physicians are now compensated are disgracefully low. Immediate advancement to levels at least proportionate to incomes of other medical specialists is essential to prevent further losses of trained and efficient personnel.

THE "MOORE" AMENDMENT TO THE FOOD, DRUG AND COSMETIC ACT

An amendment, known as the "Moore" amendment, has been proposed to modify the Federal Food, Drug and Cosmetic Act. If it is enacted, proof of wilful intent or gross negligence would be required before a criminal conviction for violation of the Federal Food, Drug and Cosmetic Act could be obtained. Under the Act adulteration or misbranding of any food, drug, device or cosmetic is a misdemeanor punishable by fines or even imprisonment. If intent to defraud can be proved, the penalty is more severe. Requirement of proof of intent as proposed by the "Moore" amendment would, no doubt, make effective enforcement difficult, if not impossible.

The manufacture and distribution of drugs in the United States is a major industry which affects the health of the people. In general, the drugs in this country are the best in the world; they provide a persuasive example of what can be accomplished in a country where incentive, competition and freedom are dominant motivations. Any proposal that would seriously change existing practices, therefore, should be studied carefully for fear that it might lower the present high standards to those of even a decade ago.

The Federal Food, Drug and Cosmetic Act, like other public protective laws, including traffic laws, does not require proof of negligence or intent as an element of a violation. The purpose of such statutes is the achievement of social betterment rather than the punishment of crimes. The provision in the federal drug law for criminal penalties against traffic in adulterated or misbranded drugs without proof of wilful intent or criminal negligence is simply indicative that the chief concern of the physician and his patient is the quality of the drug. Whether or not the vendor of a harmful or impotent drug was conscious or unconscious of the violation is not a medical or health problem.

The law places on the drug manufacturer the obligation of determining that his drugs are both safe and efficacious before he vends them. Food and drug legislation from its beginning has stemmed from the unusual responsibility held by those who produce and handle such essentials as foods and drugs. The significance of this is obvious when the history of an amendment to the Food and Drugs Act of 1906 is reviewed: This amendment (known as the Sherley Amendment of 1912) required proof of fraud or wilful intent in cases against false claims of therapeutic effect on labels. Because of the extreme difficulty of proving the state of mind of the manufacturer, only after deletion of the requirement of proof of fraud in writing the present law, enacted in 1938, were the more evil influences brought under reasonable control.

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[2] Where Buying Power Goes Up, U. S. News & World Rep. **25:** 19 (Aug. 13) 1948.

When a violation occurs, the Act requires an administrative hearing preliminary to criminal prosecution, at which time the defendant may attempt to show why prosecution should not be brought. Furthermore, intent has never been a condition to a violation of even the Anti-Trust law, which is generally considered the most prominent law governing commerce. The person who drives through a red light and kills a child is guilty of violation of the law, whether or not he deliberately committed the act. The same is true of the manufacturer who exercises such poor control that his products are potential lethal agents instead of being curative.

The people and the medical profession are entitled to maximum assurance that the drugs they use are safe and efficacious. What consolation can either the people or the physicians obtain after an injury or fatality has resulted directly from the use of a harmful drug or indirectly from the use of an impotent or adulterated drug if investigation indicates that the manufacturer did not wilfully ship such an article or that he was not grossly negligent? Any proposed amendment to the Federal Food, Drug and Cosmetic Act which would condone harmful practices or mitigate their penalties should not be enacted.

Current Comment

THE WISCONSIN MEDICAL BLUE BOOK

For a number of years the State Medical Society of Wisconsin has designated the January issue of its journal as the Medical Blue Book. Included are abstracts of the more important state licensure laws, articles on medicolegal subjects, discussions on operations to produce sterility, the relation of the physician to the workmen's compensation act, suggestions as to the content of leases for office space entered into by physicians, laws relating to the collection of accounts, malpractice, income tax requirements, the medical witness and expert testimony and a wide variety of other subjects. This year the Blue Book has been published as a permanent volume, containing information similar to that previously in the regular January issues of the journal. Such issues will hereafter be utilized as a supplement to the permanent volume, adding new information and bringing up to date the information contained in that volume. Members of the state society should find this a most valuable service. Complimentary copies of this publication have been sent by the state society to all junior and senior medical students in the two medical schools in Wisconsin. Other medical associations might well consider the desirability of making available a similar publication to their members. The Indiana State Medical Association initiated such a project in 1948. More recently the Florida Academy of Public Medicine has prepared for transmittal to members of the state medical association a brief summary of the licensure laws and contemplates extending this summary to include other matters of medicolegal significance.

CONTROL OF RABIES

A conference on rabies involving New Jersey, Pennsylvania and New York was held recently.[1] Dr. Bishop, speaking for Pennsylvania, stated that prevention, control and eradication of rabies in animals are under the jurisdiction of the Bureau of Animal Industry with veterinary practitioners primarily responsible for reporting. Laboratory examination of suspected rabies specimens is made without charge. In cases in which a microscopic examination of the brain proved negative and there was no history of exposure to human beings, the brain examination was regarded as final. When a definite history of human exposure exists, the animal inoculation test is made. Dr. Robert F. Korns, director of the Bureau of Epidemiology and Communicable Disease Control of the New York State Department of Health, pointed out that the problem of rabies control in New York State has become one of fox control rather than dog control, since the former animal is now the chief vector. Dr. Alexander Zeissig expressed the belief that at least 15 per cent of positive cases of rabies would be missed if the inoculation test were not used. Dr. James H. Steele indicated that the existence of the disease was established after two blind passages in white mice after failure to discover Negri bodies. The disease in these cases did not appear until the twenty-eighth or the twenty-ninth day, a fact indicating that the incubation period is longer than the twenty-one days generally accepted. A case of rabies has not thus far been established in rats. In New York State, control of the dog has become secondary to vaccination as a control measure, and the chief reliance is now on vaccination. When a rabid animal is reported in an area, that area is immediately quarantined and the vaccination program is instituted. The objective of mass vaccination is the building of a high percentage of immune animals in the dog population so that both dogs and human beings are protected against the rabid animals. Dr. Korns cited four measures necessary to an effective rabies control program: (1) as good a dog management program as one can get; (2) mass vaccination; (3) rabies advisory councils, and (4) a planned educational program. At present New York State's control efforts to reduce rabies in wild life, in which the fox appears to be the primary vector, consist of utilizing professional trappers to reduce the fox population in areas as large as 50 square miles, with the idea of creating adjoining zones of scarcity that act as buffers against extension of the disease. During an eight month period, twenty-seven professional trappers took 4,000 foxes from three controlled areas. Rabies in the fox is a disease of population peaks, rabies being a natural biologic control that reduces their numbers. The reduction of animals of New York seems best accomplished by utilizing professional trappers for a ten month period. The usual period in which a rabid dog may bite a person or another animal runs from three to five days. Rabid cattle are generally not vicious and are not important as transmitters of rabies, the chief importance being economic loss.

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[1] Résumé of Interstate Conference on Rabies Control, State of New York Joint Legislative Committee on Interstate Cooperation, Hotel Roosevelt, New York City, Dec. 15, 1948.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

April 11, 1949.

Investigation of Drug Prices Asked

Peoples Lobby, Inc., one of the oldest organizations of its kind in the National Capital, has requested President Truman to order a Federal Trade Commission investigation of retail prices of medicines, vitamins and surgical instruments and equipment. Benjamin C. Marsh, secretary of People's Lobby, Inc., wrote the President: "It is obvious that the full health program you are urging will not be enacted into law at this session of Congress, and also that your program should be modified. Much of the medical and dental care and treatment you advocate must be furnished by government, partly the federal government, since those who most need medicine and care cannot afford to pay for it. We earnestly request, therefore, that you have the Federal Trade Commission investigate prices of medicines and vitamins and ascertain whether there is any collusion in price setting to account for present price levels, far beyond the reach of many patients."

Federal Aid to Education Attacked as Unwise

The Council of State Chambers of Commerce, with headquarters in Washington, issued a statement on April 8 opposing Congressional enactment of legislation for financial aid to education, including subsidization of medical schools. Although S. 246, the $300,000,000 aid bill which has been favorably reported to the Senate, was singled out for attack, the Council's criticism is applicable as well to pending bills which would authorize federal support of medical, dental and nursing education.

"It seems that the pressure groups having a vested interest in the spending of this federal school aid money have become a bit alarmed at the prospect that the people in the forty-eight states might be told about how much they would pay as well as receive under the proposed aid bill," the Council stated. "So they have begun to protest in advance. They refer to it as a 'transparent' argument. But we believe the American people won't be fooled again. Particularly right now, when the spenders in Washington are urging new taxes to balance a bloated Federal budget."

Veterans Administration Reports Good Results with Hemiplegics

Physical medicine technics in treatment of hemiplegic patients are highly efficacious, according to the findings of a study conducted by the Veterans Administration hospital at Dearborn, Mich., and made public at Veterans Administration headquarters in Washington. Of 48 patients reported on and who underwent treatment since Jan. 1, 1948, 30 have been discharged to their homes, 2 sent to domiciliary homes and 1 transferred to another veterans hospital for further rehabilitation. Twelve of the 33 formerly were confined to bed and 5 were wheelchair patients. All are now able to walk. Treatment averaged ten weeks in length, with a span from one week to ten months. Duration of the hemiplegic condition before physical medicine procedures were instituted averaged ten months, with a range of one month to five years.

Dr. James A. Shannon Joins Heart Institute

Surgeon General Leonard A. Scheele, of the U. S. Public Health Service, has announced the appointment of Dr. James A. Shannon as associate director of National Heart Institute in charge of research. Dr. Shannon comes to the Institute from the Squibb Institute for Medical Research. Dr. Scheele stated that "in order to return to the field of clinical investigation, Dr. Shannon has resigned a position of outstanding importance, that of director of the Squibb Institute for Medical Research, which position he has held since April 1, 1946."

Expand Free Radioisotope Program

The U. S. Atomic Energy Commission on February 27 announced that all radioisotopes heretofore sold to qualified cancer research workers have now been placed on the free list. Previously available without charge for production costs were radioisotopes of iodine, phosphorus and sodium. The new policy adds more than 50 elements to the list, including cobalt 60, which holds promise as an eventual substitute for the more costly radium, and the radioisotopes of gold and carbon. Announcing the expansion, Dr. Shields Warren, director of the Commission's Division of Biology and Medicine, said that it is made possible through improvement of isotope production technic at Oak Ridge National Laboratory (Tennessee) and at Argonne National Laboratory, Chicago.

To finance the new program for its first year of operation, $450,000 has been allocated. Sole charge to researchers will be $10 per shipment, to cover packaging, monitoring, accounting and billing, plus cost of transportation. When request is made for synthesizing the radioisotope into a chemical compound, the recipient will be charged for the labor involved. Allocations of radioisotopes will be for the following purposes: (1) cancer studies performed with use of animals, (2) research programs on basic cellular metabolism of cancerous cells and (3) experimentation toward evaluation of therapeutic uses of radioactive materials.

Applications for radioisotopes for use in human subjects must be approved by the human applications subcommittee of the Commission's Isotope Distribution Committee. Criteria are: (1) the physician using the materials must be associated with an institution qualified for their proper use; (2) use of the radioisotopes must be approved by the institution; (3) clinical users shall be physicians in good standing with their respective medical societies and must have had previous clinical experience with radiation.

Veterans Administration Appoints Medical Directors

The following have been appointed by Veterans Administration as area medical directors, with the responsibility of supervising Veterans Administration hospital and medical activities in their respective regions of the country: Dr. Frank B. Brewer, with headquarters in Atlanta; Dr. Francis B. Carroll, Boston; Dr. Einar C. Andreassen, Fort Snelling, Minn.; Dr. Charles H. Beasley, St. Louis, and Dr. Cyril H. C. Francis, San Francisco. A sixth appointee, Dr. Delmar Goode, will be stationed at the central office in Washington as supervisor of medical department operations in the District of Columbia and vicinity. Establishment of the area medical offices results from abolition of the Veterans Administration's thirteen branch offices, each of which had its own medical director.

Dr. Pereira Betancourt Arrives for U. S. Tour

The Department of State has announced the arrival in this country of Dr. Julio Pereira Betancourt, director of the Children's Hospital at La Paz, Bolivia, whose purpose is to visit hospitals, medical schools and medical centers for the next three months. His trip has been arranged under the Department's travel grant program. A founder of the Bolivian Pediatrics Society, Dr. Pereira is professor of medicine at the University of La Paz and has had special training in children's diseases at the Children's Hospital in Buenos Aires.

Dr. Kiefer Relieves Dr. Crabtree at N. S. R. B.

Official announcement is expected in mid-April that Dr. Norvin C. Kiefer has relieved Dr. James A. Crabtree as chief of the division of medical services, National Security Resources Board. Dr. Kiefer formerly was director of the health emergency planning unit in the U. S. Public Health Service. Dr. Crabtree's new appointment will be announced later.

Coming Medical Meetings

American Medical Association, Atlantic City, June 6-10. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

Alabama, Medical Association of the State of, Montgomery, April 19-21. Dr. Douglas L. Cannon, 519 Dexter Ave., Montgomery 4, Secretary.
American Academy of Tuberculosis Physicians, Atlantic City, Hotel Dennis, June 4. Dr. Oscar S. Levin, P. O. Box 7011, Denver 6, Colo., Secretary.
American Association of Genito-Urinary Surgeons, White Sulphur Springs, W. Va., Greenbrier Hotel, May 9-11. Dr. Norris J. Heckel, 122 S. Michigan Ave., Chicago 3, Secretary.
American Association of the History of Medicine, Lexington, Ky., May 23-24. Dr. Benjamin Spector, 416 Huntington Ave., Boston 15, Secretary.
American Association on Mental Deficiency, New Orleans, Hotel Roosevelt, April 27-30. Dr. Neil A. Dayton, Box 51, Mansfield Depot, Conn., Secretary.
American Broncho-Esophagological Association, Chicago, Drake Hotel, April 18-19. Dr. Edwin N. Broyles, 1100 N. Charles St., Baltimore 1, Secretary.
American College of Radiology, Atlantic City, Chalfonte-Haddon Hall, June 5. Mr. William C. Stronach, 20 N. Wacker Drive, Chicago 6, Secretary.
American Dermatological Association, Hot Springs, Va., May 23-26. Dr. Louis A. Brunsting, 102 Second Ave. S.W., Rochester, Minn. Secretary.
American Gastro-Enterological Association, Atlantic City, Claridge Hotel, June 3-4. Dr. Dwight L. Wilbur, 655 Sutter Street, San Francisco 2, Secretary.
American Goiter Association, Madison, Wis., Hotel Loraine, May 26-28. Dr. Thomas C. Davison, 478 Peachtree St., N.E., Atlanta 3, Ga., Secretary.
American Laryngological Association, New York, May 16-17. Dr. Louis H. Clerf, 1530 Locust St., Philadelphia, Secretary
American Laryngological, Rhinological and Otological Society, Chicago, Drake Hotel, April 18-20. Dr. C. Stewart Nash, 277 Alexander St., Rochester 7, New York, Secretary.
American Ophthalmological Society, Hot Springs, Va., The Homestead, June 2-4. Dr. Maynard C. Wheeler, 30 W. 59th St., New York, Secretary.
American Orthopedic Association, Colorado Springs, May 18-21. Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secretary.
American Otological Society, New York, May 18-19. Dr .Gordon D. Hoople, 713 E. Genesee St., Syracuse, N. Y., Secretary.
American Pediatric Society, Atlantic City, May 5-6. Dr. Henry G. Poncher, 1819 W. Polk St., Chicago 12, Secretary.
American Physiological Society, Detroit, April 19-22. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Executive Secretary.
American Proctologic Society, Columbus, Ohio, May 31-June 4. Dr. W. Wendell Green, 1838 Parkwood Ave., Toledo 2, Ohio, Secretary.
American Psychiatric Association, Montreal, Canada, May 23-27. Dr. Leo H. Bartemeier, General Motors Bldg., Detroit 2, Secretary.
American Radium Society, Atlantic City, June 5. Dr. Hugh F. Hare, 605 Commonwealth Ave., Boston 15, Secretary.
American Society for Clinical Investigation, Atlantic City, May 2. Dr. Paul B. Beeson, Grady Hospital, Atlanta 3, Georgia, Secretary.
American Society for Experimental Pathology, Detroit, April 18-22. Dr. Frieda S. Robscheit-Robbins, 260 Crittenden Blvd., Rochester, N. Y., Secretary.
American Society for Pharmacology and Experimental Therapeutics, Detroit, April 18-22. Dr. Harvey B. Haag, Medical College of Virginia, Richmond 19, Secretary.
American Society for Research in Psychomatic Problems, Atlantic City, Chalfonte-Haddon Hall, April 30-May 1. Dr. Sydney G. Margolis, 714 Madison Ave., New York 24, Executive Secretary.
American Society of Biological Chemists, Detroit, April 17-22. Dr. Otto A. Bessey, 1853 W. Polk St., Chicago 12, Secretary.
American Surgical Association, St. Louis, April 20-22. Dr. Nathan Womack, University of Iowa, Iowa City, Secretary.
American Therapeutic Society, Atlantic City, June 2-5. Dr. Oscar B. Hunter, 915 Nineteenth St. N.W., Washington, D. C., Secretary.
American Urological Association, Los Angeles, Hotel Biltmore, May 16-19. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secretary.
Arizona State Medical Association, Tucson, May 8-10. Dr. Frank J. Milloy, 15 E. Monroe St., Phoenix, Secretary.
Association for the Study of Internal Secretions, Atlantic City, June 3-4. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary.
Association of American Physicians, Atlantic City, May 3-4. Dr. Henry M. Thomas Jr., 1201 N. Calvert St., Baltimore 2, Secretary.
California Medical Association, Los Angeles, May 8-11. Dr. L. Henry Garland, 450 Sutter St., San Francisco 8, Secretary.
Connecticut State Medical Society, New Britain, State Teachers' College, May 3-5. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.
Federation of American Societies for Experimental Biology, Detroit, April 18-22. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Secretary.
Georgia, Medical Association of, Savannah, Hotel De Soto, May 10-13. Dr. Edgar D. Shanks, 478 Peachtree St., N.E., Atlanta, Secretary.
Hawaii Territorial Medical Association, Honolulu, May 5-8. Dr. Harry L. Arnold Jr., 510 S. Beretania St., Honolulu, Secretary.
Illinois State Medical Society, Chicago, Palmer House, May 16-18. Dr. Harold M. Camp, 224 S. Main St., Monmouth, Secretary.
International Congress on Rheumatic Diseases, New York, Hotel Waldorf-Astoria, May 30-June 3. Dr. Philip S. Hench, Mayo Clinic, Rochester, Minn., Chairman, American Committee.
Iowa State Medical Society, Des Moines, April 18-21. Dr. Allan B. Phillips, 406 Sixth Ave., Des Moines 9, Secretary.
Kansas Medical Society, Topeka, May 9-12. Dr. D. D. Vermillion, 512 New England Bldg., Topeka, Secretary.
Louisiana State Medical Society, New Orleans, May 5-7. Dr. P. T. Talbot, 1430 Tulane Avenue, New Orleans 13, Secretary.
Maryland, Medical and Chirurgical Faculty of the State of, Baltimore, April 26-27. Dr. George H. Yeager, 1211 Cathedral St., Baltimore 1, Secretary.
Massachusetts Medical Society, Worcester, May 24-27. Dr. H. Quimby Gallupe, 8 Fenway, Boston 15, Secretary.
Minnesota State Medical Association, St. Paul, Municipal Auditorium, May 9-11. Dr. B. B. Souster, 496 Lowry Medical Arts Bldg., St. Paul 2, Secretary.
Mississippi State Medical Association, Biloxi, May 10-12. Dr. T. M. Dye, Box 295, Clarksdale, Secretary.
National Tuberculosis Association, Detroit, May 2-6. Dr. H. Stuart Willis, 1790 Broadway, New York 19, Secretary.
Nebraska State Medical Association, Omaha, Hotel Paxton, May 2-5. Dr. R. B. Adams, 1315 Sharp Building, Lincoln 8, Nebraska, Secretary.
New Jersey, Medical Society of, Atlantic City, Hotel Ambassador, April 25-28. Dr. Earl L. Wood, 315 W. State St., Trenton 8, Secretary.
New Mexico Medical Society, Roswell, May 5-7. Dr. H. L. January, 221 W. Central Ave., Albuquerque, Secretary.
New York, Medical Society of the State of, Buffalo, Hotel Statler, May 2-6. Dr. Walter P. Anderton, 292 Madison Ave., New York 17, Secretary.
North Carolina, Medical Society of the State of, Pinehurst, The Carolina, May 9-11. Dr. Roscoe D. McMillan, P. O. Box 232, Red Springs, Secretary.
North Dakota State Medical Association, Minot, May 14-17. Dr. O. A. Sedlak, 702 First Ave. S., Fargo, Secretary.
Ohio State Medical Association, Columbus, April 19-21. Mr. Charles S. Nelson, 79 E. State St., Columbus 15, Executive Secretary.
Oklahoma State Medical Association, Tulsa, Mayo Hotel, May 15-19. Mr. R. H. Graham, 210 Plaza Court Bldg., Oklahoma City, Secretary.
Rhode Island Medical Society, Providence, May 11-12. Dr. Morgan Cutts, 106 Francis St., Providence 3, Secretary.
Society of American Bacteriologists, Cincinnati, May 15-20. Dr. John Blair, Hospital For Joint Diseases, New York, Secretary.
South Dakota State Medical Association, Yankton, May 22-24. Dr. Roland G. Mayer, 22½ S. Main St., Aberdeen, Secretary.
Southeastern Surgical Congress, Biloxi, Miss., May 23-26. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Ga., Secretary.
Texas, State Medical Association of, San Antonio, May 2-5. Dr. Harold Williams, 700 Guadalupe St., Austin, Secretary.
Western Association of Industrial Physicians and Surgeons, Los Angeles, Hotel Biltmore, May 7. Dr. Christopher Leggo, Crockett, Calif., Secretary.
Western Branch of American Public Health Associaiton, Los Angeles, Hotel Biltmore, May 30-June 1. Mr. Walter S. Mangold, University of California, Berkeley, Calif., Secretary.

Medical Legislation

STATE LEGISLATION

Arizona

Bill Enacted.—H. 82 has become chapter 42 of the Laws of 1949. It is a rather complete revision and reenactment of the medical practice act and provides among other things for the right to make use of the injunctive process in enforcing the provisions of the act and provides further that the giving or receiving of rebates shall be construed to be within the meaning of the term "unprofesional conduct."

Arkansas

Bills Enacted.—H. 52 has become Act No. 283 of the Acts of 1949. It provides that any inhabitant of the state over the age of 21 years and of sound mind may, by an instrument in writing, dispose or make arrangements for the disposition to be made of his body or any part or organ thereof after death, provided the disposition of said body or parts thereof is made for the purpose of advancement of medical science or for the replacement of diseased or worn out parts of other humans or for the rehabilitation of human parts or other organs. H. 225 has become Act No. 247 of the Acts of 1949. It amends the basic science act by exempting chiropractors therefrom. H. 363 has become Act No. 346 of the Acts of 1949. It requires the Committee on Admissions of the School of Medicine of the University of Arkansas to allocate position vacancies in the school by congressional districts based on the population of each district. Applicants from counties of low population will be given priority within each congressional district when such applicants are willing to certify their intent to practice medicine upon the completion of their training in a community of two thousand people or less. H. 385 has become Act No. 302 of the Acts of 1949. It provides that the membership on the state board of health shall consist of nine members, seven of whom shall be chosen from the seven congressional districts of the state. Such members must be graduates of a legally constituted and reputable medical college and of at least seven years' experience in the practice of their profession and of good professional standing. These appointments shall be made by the governor from a list of not less than three names presented by the Arkansas Medical Society. S. 275 has become Act No. 258 of the Acts of 1949. It requires all physicians, surgeons, hospitals and druggists who might be called upon to render first aid treatment to report all cases of knife wounds treated by them to the office of the sheriff of the county.

Delaware

Bill Introduced.—H. 419 proposes to require all persons teaching in the public schools and all persons hereafter making application to teach in the public schools of the state to submit to a psychiatric examination before continuing or being accepted to teach.

Georgia

Bill Enacted.—H. 155 has become Governor's Act No. 245 of the Acts of 1949. It provides that any **applicant for a marriage license** must present a certificate signed by a qualified physician licensed to practice medicine and surgery in any state or United States territory stating that the applicant has been given an examination and that in the opinion of the examining physician the applicant is not infected with **syphilis** in a communicable stage.

Illinois

Bill Introduced.—H. 484 proposes to authorize the Department of Registration and Education to issue **licenses** to practice **chiropractic,** which is defined as a philosophy, science and art of things natural, a system of locating misaligned or displaced vertebrae of the human spinal column; the procedure preparatory to, and the adjustment by hand of, such misaligned or displaced vertebrae of the human body, without the use of drugs or surgery, for the correction of the cause of disease together with the use of scientific instruments for analysis. S. Res. 32 proposes a resolution opposing the enactment by the Congress of the United States of any program of **national compulsory health insurance** and proposing that the senators and representatives from Illinois be requested to oppose and vote **against** any such proposed **legislation.** S. 223, to amend the law relating to **prenatal examination tests** by physicians, proposes to require also a standard serological test for the Rh factor.

Iowa

Bill Enacted.—H. 300 was approved March 30, 1949. It provides regulations for the licensing of practical nurses.

Kansas

Bill Introduced.—H. 420 proposes the enactment of a food, drug and **cosmetic act** providing among other things, that any **drug sold at retail** containing any quantity of aminopyrine, barbituric acid, pituitary, thyroid, sulphonmethane or their derivatives shall be sold only on the **written prescription** of a physician, dentist or veterinarian licensed by law to administer such drug.

Minnesota

Bill Enacted.—H. 183 has become chapter 160 of the Laws of 1949. It authorizes persons to **dispose of their bodies** in whole or in part **by will** to a teaching institution, university, college, state board of public health or legally licensed hospital, either for use as such institution, university, college or hospital may see fit, or for use as expressly designated in the will. S. 834 has become chapter 195 of the Laws of 1949. It authorizes the state **live stock sanitary board** to license institutions desiring to obtain impounded animals for purposes of scientific investigation.

Montana

Bill Enacted.—H. 285 has become Chapter 172 of the Laws of 1949. It authorizes autopsies or **postmortem examinations** upon dead bodies in cases where dissection, autopsy or postmortem examination is directed or authorized by the last will and testament of the deceased and in cases where the husband, wife or next of kin shall in writing authorize dissection, autopsy or postmortem examination for the purpose of ascertaining the cause of death. All dissections, autopsies or postmortem examinations involving dissection of any part of the human body shall be performed by a physician or surgeon duly licensed to practice such profession by the state board of medical examiners and upon completion of such examination the physician shall deliver a written report thereof together with his findings as to the cause of death to the next of kin of the decedent or the representative of the decedent's estate or to other persons lawfully requesting such procedures.

New Hampshire

Bill Enacted.—H. 246 has become chapter 102 of the Laws of 1949. It authorizes the **state board of health** to purchase **antitoxins,** other serums, vaccines and immunizing agents when it deems it advisable in the interest of public health and to make rules and regulations for the **free distribution** of such biologicals.

New Jersey

Bills Introduced.—A. 447 proposes the creation of a state board of **examiners in medical technology** which is defined to mean the science or technic of performing laboratory tests, investigations, analyses or examinations of any fluid, excretion or secretion of the human body, or of any organism contained therein for the use of any licensed member of the healing arts in the course of his practice. Two members of the board would be required to be pathologists. A. 511 proposes to authorize a **local** board of health to **quarantine** any person afflicted with **tuberculosis** of the lungs in a communicable form diagnosed as such by a licensed physician after examination by x-ray or finding of tubercle bacilli in the sputum or gastric washings. S. J. R. 6 proposes the establishment of a temporary committee to be charged with the duty of investigating or causing to be investigated and of studying and evaluating present facilities and resources and future needs for the prevention, care, treatment and rehabilitation of **the chronic sick** in the state.

New Mexico

Bills Enacted.—H. 147 has become chapter 139 of the Laws of 1949. It amends the law relating to the **board of medical examiners** by requiring that the five members thereof be appointed from a list of names of qualified persons submitted to the governor by the New Mexico Medical Society. S. 248 has become chapter 108 of the Laws of 1949. It requires every physician attending a **pregnant woman** for conditions relating to the pregnancy to take or cause to be taken a **sample of blood** of such woman at the time of the first examination and to submit the same to an approved laboratory for a standard serological test for **syphilis.**

North Carolina

Bills Introduced.—H. 490 proposes to make it unlawful for anyone other than a pharmacist to deliver **barbituric acid** to any person and then only upon an original prescription of a person licensed by law to prescribe barbiturates. H. 602, to **amend the food and drug act,** proposes that if a drug is sold at retail and contains any quantity of aminopyrine, barbituric acid, conchophen, dinitrophenol, sulfanilamide, pituitary, thyroid or their derivatives it must be sold on the written prescription of a member of the medical, dental or veterinary profession who is licensed by law to administer such drug, or else must be labeled in a certain manner. H. 686, to amend the law relating to **osteopathy,** proposes to authorize osteopathic physicians to use medicinal preparations which are purchasable by the general public without a physician's prescription. S. 198 proposes to authorize and **impower the North Carolina Medical Care Commission** to establish and promulgate rules and regulations whereby physicians, dentists, pharmacists and nurses receiving loans from the state shall receive a credit on such loan for each year of practicing his or her profession in a rural area in the state. S. 352 proposes that any person may by will **dispose of all or part of his body** to a teaching institution, university, college, the State Department of Health, legally licensed hospital or any other legally licensed hospital, agency or commission operating an eye bank, bone or cartilage bank, a blood bank or any other bank of a similar nature and kind designated for the rehabilitation of the maimed.

Bills Enacted.—H. 111 was ratified March 22, 1949. It makes it the duty of every **physician to notify** the local **health officer** of the name, address and such other items as might be required of any person by whom the physician is consulted professionally and who is found to have **cancer** of any type, or who is suspected of having cancer of any type. S. 96 was ratified March 22, 1949. It requires all physicians and midwives having charge of a birth of a **prematurely born infant** to give immediate **notification** thereof to the local health department of the county in which the infant was born.

North Dakota

Bill Enacted.—S. 28 was approved March 12, 1949. It requires every physician or other person authorized by law to practice obstetrics who attends a pregnant woman in North Dakota for conditions relating to pregnancy during the period of gestation or at delivery to take or cause to be taken a sample of blood of such woman at the time of the first professional visit or within ten days thereafter and to submit such sample to an approved laboratory for a standard **serological test for syphilis.** S. 226 was approved March 18, 1949. It prohibits the **delivery of barbiturates** to any person except by a pharmacist on an original **prescription** from a person licensed by law to prescribe and administer barbiturates.

Ohio

Bills Introduced.—H. J. Res. 32 proposes the creation of a **committee to investigate** and examine the operations and activities of various **boards** of examiners, including the **medical examiners,** and to make recommendations for the elimination of any irregular or corrupt practices that may exist and to report such irregularities to the attorney general for prosecution. H. 301 proposes the creation of a state **board of chiropractic examiners** and defines chiropractic to be the art and science of locating, the procedure preparatory to adjusting and the adjusting by hand of the subluxations of the articulations of the spinal column which is deemed to be the twenty-four movable vertebrae, including the sacrum and coccyx and adjacent tissues, for the purpose of removing any interference with nerve transmission; but it shall not include surgery or the administration or prescription of any drug included in materia medica. H. 308 proposes to make it unlawful to deliver any of **the barbiturates** except by a pharmacist on the original prescription of a person licensed in the state to prescribe and administer drugs. H. 116 proposes the creation of a commission to study the problem created by **chronic alcoholics** throughout the state and to advise on the feasibility of state institutions for their treatment. H. 451 proposes that any person subject to arrest found in a **coma, semi-coma, unconscious** or **semi-conscious** condition shall not be detained in any municipal or county jailhouse until a competent physician licensed to practice in the state of Ohio shall have **certified** that such **detention** will not be detrimental to the health of such person. H. 564 proposes the creation of a **health commission** to make a comprehensive **study** of all laws relating to the health and welfare of the citizens of the state, and the administration of health laws of the state, and to study and investigate such laws for the purpose of recommending changes or **revisions of the present health system.** H. 613 proposes the creation of a **state board of naturopathic examiners** and defines naturopathy as that philosophy and system of the healing art embracing prevention, diagnosis, and the care of and treatment of human ills, diseases, traumas, deformities, and functions by the use of the several properties of air, light, heat, cold, water, mechanics, electricity, manipulation, and psychology, together with the use of such substances, largely nutritional, of plant, animal or mineral origin as are naturally found in and required by the body. Naturopaths would not be permitted to practice major surgery or use x-ray, radium, and radioactive substances for therapeutic purposes, or to prescribe for internal use any substance required by law to be labeled poison.

Oklahoma

Bill Introduced.—S. 253 proposes to amend the medical practice act so as to permit the state board of medical examiners to issue **temporary licenses** to applicants desiring a license only for the purpose of serving a residency in the state in a hospital approved for resident training by the State Board of Medical Examiners. The temporary license would expire at the end of a calendar year or at the expiration of the resident training and may be renewed for not more than two additional years on approval of the State Board of Medical Examiners.

Oregon

Bill Introduced.—S. 406 proposes the creation of a **state board of massotherapy examiners** and defines massotherapy as the art of kneading, *rubbing and massaging of the human body with or without such* appliance as steam bath, vapor bath, electric light bath, electric vibrator for hygienic or remedial purposes to maintain health and establish a normal condition of the body.

Bill Enacted.—S. 213 has become chapter 162 of the Laws of 1949. It amends the osteopathic act by providing that the **practice of osteopathy** and surgery by a duly appointed member of the resident staff or by an intern while actually serving as such in any legally incorporated osteopathic hospital shall not be governed by the act. The law also authorizes the board of osteopathic examiners to accept a **certificate of** successful **examination** issued by the National Board of Examiners of Osteopathic Physicians and Surgeons.

Pennsylvania

Bills Introduced.—H. Res. 26 and H. Serial No. 36 propose to memorialize the Congress of the United States to defeat the passage of the **Wagner-Murray-Dingell socialized medicine bill.** H. 1177 proposes that every employer of one hundred or more persons shall employ or **engage one or more licensed physicians** who shall be present to render *medical assistance at all necessary times at the place where work is in* progress. H. 1209 proposes to authorize the board of health to furnish **free** or at less than cost **insulin treatments** to certain persons suffering from **diabetes** and who are without adequate funds to pay for such treatments. H. 1210 proposes to authorize the department of health to furnish **free** or less than cost **streptomycin treatments** to certain persons suffering from **tuberculosis** who are without adequate funds to pay for such treatments.

Rhode Island

Bill Introduced.—H. 792 proposes to require **physicians and osteopaths** to register their licenses annually. H. 924, to amend the administration act of 1939, proposes to authorize the division of professional regulation to appoint examiners for electrolysis and the basic sciences. The proposal then provides that one member of each of the **chiropractic, osteopathic and electrolysis boards** shall be a physician licensed to practice medicine in the state of Rhode Island and that membership on the basic science board shall be made up of two members selected from the faculties of Brown University, Providence College and Rhode Island State College who are full time professors or associate or assistant professors in the basic sciences and one member who shall be a pathologist of training and experience sufficient to give him a broad knowledge of the subject. S. 229 proposes the creation of a **basic science examining board.**

South Carolina

Bills Introduced.—H. 1233 proposes the creation of a State **Licensing Board for the Healing Arts.** Applicants who have complied with all the requirements of the law relating to the practice of specified branches of the healing art shall be entitled upon filing of duplicate certificates with the State Licensing Board for the Healing Arts to apply to the Licensing Board for the Healing Arts for a license to practice the special branch of the healing art for which such certificate was filed. "But no such applicant, as a matter of right, shall be entitled to have the license issued by the State Licensing Board for the Healing Arts, it being the purpose and intent of this Act to give to the State Licensing Board for the Healing Arts an over-all supervision, discretion and judgment with respect to the issuance of licenses authorizing the licensee to practice the healing art or any branch thereof within the State of South Carolina, and the State Licensing Board for the Healing Arts as herein created and constituted shall have the power and it shall be its duty to inspect and determine for itself and in the interest of the State that each and every certificate issued by any board authorized by law to receive applications, conduct examinations and make a preliminary determination of the fitness of any applicant for a license to practice the healing art or any branch thereof, was lawfully issued by such board and truly and correctly certifies all the facts therein contained." H. 1284, to amend the law relating to **naturopathy**, proposes a new definition of naturopathy as follows: the use and practice of psychological, mechanical and material health sciences to aid in purifying, cleaning and normalizing human tissues for preservation or restoration of health according to the fundamental principles of anatomy, physiology and applied psychology, as may be required. Naturopathic practice employs among other agencies, heat, light, water, electricity, psychology, diet, massage and other manipulative methods. These agencies are known as psychotherapy, suggestotherapy, hydrotherapy, electrotherapy, mechanotherapy, biochemistry, external appliances, mechanical and electrical appliances, hygiene, first aid, sanitation, heliotherapy and dietetics. H. 1440 proposes to repeal the **naturopathic practice act.**

South Dakota

Bills Enacted.—H. 217 was approved Feb. 23, 1949. It repeals existing state laws relating to the practice of medicine and the practice of osteopathy and creates a state **board of medical and osteopathic examiners** of which one member is a doctor of osteopathy. Applicants for a license to practice either medicine or osteopathy would take the same examination except that medical applicants would be examined in the practice of medicine and osteopathic applicants in the practice of osteopathic medicine. Licenses must state upon their face whether or not the licensee is licensed to practice medicine or surgery or osteopathic medicine and surgery. S. 167 was approved Feb. 25, 1949. It permits the organization of **cooperative associations** for the construction and operation of hospitals and provides for medical services. S. 271 was approved March 2, 1949. It permits the newly created board of **medical and osteopathic examiners** to grant temporary licenses to practice when the board by resolution finds that an urgent need exists in any part or portion of the state. The temporary license shall be issued and effective for such period as the board shall determine not exceeding four years from the date of issuance and it shall entitle the person to whom issued to engage in the practice of medicine, surgery and obstetrics and their branches during the period specified in such license in such portion or part of the state as may be designated.

Tennessee

Bill Introduced.—H. 978 proposes the creation of a state **board of examiners** for **naturopathy** and defines naturopathy as the prevention, diagnosis and treatment of human injuries, ailments and diseases by the use of such physical forces as air, light, water, vibration, heat, electricity, **psychotherapy**, neuropathy, dietetics, massage and the administration of botanicals and biologicals, but shall not include the administration of narcotics, sulfonamide drugs or powerful physical agents, such as x-ray and radium therapy, or surgery.

Bill Enacted.—H. J. Res. 6 was approved Feb. 4, 1949. It resolves that the House of Representatives go on record as opposing **socialized medicine** in all of its phases and proposes that the House request and urge the Senators and members of the House of Representatives representing Tennessee in the Congress of the United States **to resist** legislation setting up **socialized medicine.**

Texas

Bills Introduced.—H. 588 proposes to require all **applicants** for a **marriage license** to present a certificate from a duly qualified physician licensed to practice *medicine and surgery in Texas or in any state or* territory of the United States stating that the applicant has been given an actual and thorough examination for **syphilis** and that the person examined is free from any infectious condition of that disease. H. 597 proposes to require every physician permitted by law to attend a **pregnant woman** during gestation to take or cause to be taken a sample of the **blood** of such woman at the time of the first examination and to submit same to a laboratory for a standard serologic test for **syphilis.** H. 721 proposes the creation of a Texas board of **chiropractic examiners** and defines a chiropractor as one who shall employ objective or subjective *means without the use of drugs or surgery, for the purpose of* ascertaining the alignment of the vertebrae of the human spine and the practice of adjusting the vertebrae to correct any subluxation or misalignment thereof. H. 760 proposes that corporations furnishing **nonprofit hospital service** or group hospital service shall **not discriminate against** any **hospital** or restrict the right of the **patient** to obtain the services of any licensed doctor of medicine or osteopaths or any other person licensed by the Texas board to practice any branch of the healing arts.

Vermont

Bills Introduced.—H. 338 proposes the enactment of a **hospital licensing** law. H. 376 proposes to require every person licensed to practice **medicine and surgery** to have his **license annually renewed** by the secretary of the state board of medical registration on or before January 31 of each year. Failure to do so would forfeit the right to practice his profession. H. 404 proposes that it shall not be necessary in **malpractice actions** for the **plaintiff** to introduce in **evidence** expert testimony for the purpose of establishing a standard of care and skill for the purpose of showing the failure of the defendant to observe such standard.

West Virginia

Bill Enacted.—S. Con. Res. 9 was adopted March 2, 1949. It provides for the creation of a committee to make a study and **survey concerning** the advisability of the establishment of a four year **school of medicine** and **dentistry** at West Virginia University.

Wisconsin

Bills Introduced.—A. 215, to amend the law relating to chiropodists, proposes to **limit the practice of a chiropodist** by providing that nothing contained in the act shall be construed to permit major surgical operations on the foot, nor minor operations on the foot involving vascular diseases or diabetes except on the advice of one licensed to practice under the medical practice act, nor the treatment of conditions of the feet involving osteomyelitis, malignancies, or syphilis, nor the therapeutic use of x-ray and radium, nor cutting operations involving the bones, ligaments, muscles, nerves or tendons of the feet. A. 472, to amend the law relating to chiropractors, proposes to eliminate the existing provision which requires that at the time of the annual **renewal of the license** the applicant must present satisfactory evidence that he has attended at least one of the two-day educational programs conducted by the **Wisconsin Chiropractic Association.** A. 475 proposes that no person shall conduct a **postmortem examination** of the body of a deceased person unless **licensed** to **practice medicine** and surgery and then only after first obtaining the written consent of the surviving heir who takes possession of the body. S. 504 proposes that no person shall **practice the professions** of law, medicine, dentistry, nursing, chiropractic, accounting or any other profession for which a license is required by the state unless he shall annually file with the Secretary of State an **oath** that he is **not a member** of the **Communist Party.**

Wyoming

Bill Introduced.—S. J. M. 5 proposes to memorialize the Congress of the United States to refrain from imposing upon the citizens of the nation **any form of compulsory health insurance** or any system of medical care designed for national bureaucratic control.

Bill Enacted.—S. 20 has become chapter 48 of the Laws of 1949. It amends the hospital licensing law enacted by the 1948 legislature by requiring the state board of health to submit, biennially, to the legislature a **code of minimum hospital standards** for all hospitals in the state.

GOVERNMENT SERVICES

ARMY

CHANGES IN ARMY MEDICAL AND DENTAL R.O.T.C. SUMMER CAMP PROGRAM

The Surgeon General has announced that changes in the medical and dental reserve officers' training corps summer camp program have been approved by the Department of the Army General Staff. Changes affect only those students who are veterans of one year or more of active military service. They include: (1) use of Army general hospitals instead of the Medical Field Service School for the summer training of qualified persons; (2) the revision of the summer military training program for such persons so as to place primary emphasis on military medicine, dentistry and surgery, and (3) a corresponding reduction in the number of hours devoted to essentially military subjects in that program.

The revisions will not affect those students who are not qualified by a year or more of active military service, As in previous years, they will attend the normal Medical and Dental R.O.T.C. Summer Camp conducted at the Medical Field Service School, Brooke Army Medical Center, Fort Sam Houston, Texas.

Primary reason for the changes was recognition of the fact that veterans of one year or more of active military service are already qualified in most basic military subjects, and their reaction to refresher training in military subjects was not always conducive to the best interests of the program. Under the new changes this condition will be eliminated and these veterans will be free to utilize this training period in a manner more advantageous to both themselves and the service.

Qualified medical and dental students will be sent to selected Army general hospitals for a six week period during the summer instead of to the Medical Field Service School. During this period they will receive orientation in military matters, but the major share of their time will be spent in the wards or dental clinics of the hospitals. They will also attend as many of the regularly scheduled formal teaching exercises as can be integrated into their program. A greater portion of the teaching will be accomplished by the residents, interns and the attending staff assigned to the hospital. With few exceptions the hospitals in which they will undergo this training are at present participating in the programs of nearby medical schools. In addition, a majority of the attending staff physicians and dentists are closely connected with civilian professional schools.

Training periods at the selected general hospitals will be six weeks in length. Two classes will be conducted at each: one beginning June 12 and one beginning August 1. So far as possible, all qualified students at one institution will be sent to the same class at the same installation.

SCRUB TYPHUS RESEARCH UNIT RETURNS TO MALAYA

The Surgeon General's Office announces that the Army Medical Department Scrub Typhus Research Unit has returned to Malaya to continue studies on the effectiveness of the new antibiotic chloromycetin.® The Army research team was invited by the government of the Federation of Malay States and will work at the Institute for Medical Research at Kuala Lumpur with scientists of that institution. The objects of the mission are: (1) to try out on scrub typhus patients a new synthetic chloromycetin® developed by the Parke, Davis Laboratories; (2) to investigate the use of this product for prophylaxis in order to protect troops in typhus areas, and (3) to determine whether the new synthetic is as effective as the natural mold derivative, crystalline chloromycetin,® in the treatment of typhoid.

Chloromycetin® was first reported to the public in October 1947. The preliminary research and subsequent field tests were directed by Dr. Joseph E. Smadel, director of the Department of Virus and Rickettsial Diseases. The results of treatment of cases of typhoid with chloromycetin® were announced in July 1948 and its application to the treatment of spotted fever was described in October 1948. Chloromycetin® is a crystalline substance obtained through the concentration and purification of cultures of a streptomyces. The mold, which was discovered by Dr. Paul R. Burkholder of Yale in a specimen of soil from Venezuela, was referred to Parke, Davis and Company, where the active material from the extract was isolated in crystalline form by Drs. Quentin R. Bartz and John Ehrlich and associates.

VANDERBILT SPONSORS RESERVE HOSPITAL UNIT

The Medical School of Vanderbilt University, Nashville, Tenn., has agreed to sponsor an Army reserve hospital unit made up of personnel in the Nashville area. Following completion of the agreement, military officials participating were guests of the University at a luncheon. Among those present were Chancellor Branscomb of Vanderbilt; Dean Goodpasture of the Medical School; Brig. General Hugh Morgan of the Medical Corps Reserve; Col. Harrison Shull; Col. Beverly Douglas; Lieut. Col. S. W. Hosea of the Tennessee R.O.T.C.; Major Don Crozier, professor of military science and tactics at Vanderbilt; Major Tom F. Little of the Third Army Headquarters, and Major McCleary Nash. During the recent war, Vanderbilt's Medical School sponsored the 300th General Hospital Unit which saw overseas service.

NONMEDICAL OFFICERS TO BE ASSISTANT INSPECTORS

The Surgeon General's Office announces a twelve week course at the Medical Field Service School, Fort Sam Houston, Texas, beginning April 18, to train Medical Service Corps officers as assistant medical inspectors. Officers who satisfactorily complete the course will supervise programs of preventive medicine, including communicable disease control, environmental sanitation, personal hygiene and pertinent phases of sanitary engineering. To qualify, an applicant must be a high school graduate less than 40 years of age, must have completed the officer's basic course or an equivalent and have demonstrated an interest in preventive medicine.

INTERN TRAINING IN CIVILIAN INSTITUTIONS

The following first lieutenants of the Medical Department have been accepted for intern training in hospitals indicated:

Name	Institution
Apel, Otto F.	Saint Luke's Hospital, Cleveland
Cote, Richard H.	Los Angeles County General Hospital
Engles, Leroy L.	Scott and White Hospital, Temple, Texas
Gotteri, Joseph A.	Sacred Heart Hospital
Holt, Prescott B.	Roosevelt Hospital, New York
Ireland, Elwood F., Jr.	Hartford Hospital, Hartford Conn.
LaFlamme, Paul J.	Jersey City Medical Center, N. J.
Mikuta, John J.	University of Pennsylvania Hospital, Philadelphia
Schaffer, Edward V.	New York City Hospital, New York

POSTGRADUATE INSTRUCTION

The following medical officers have been accepted for advanced courses in civilian schools and hospitals:

Name and Rank	Institution	Course
First Lieut. Robert H. Bickford	State University of Iowa Hospitals, Iowa City, Iowa	Residency in medicine
First Lieut. Bela R. Rieger	New Jersey State Hospital, Greystone Park, N. J.	Residency in neuropsychiatry
First Lieut. Campbell A. McNicol	New York City Hospital, Welfare Island, N.Y.	Residency in pathology
First Lieut. John J. Meyerdierks	Jersey City Medical Center, Jersey City, N. J.	Residency in surgery

PUBLIC HEALTH SERVICE

UNITED STATES-CANADIAN CANCER CAMPAIGN

Federal agencies of the United States and Canada jointly are sponsoring an across the border campaign to tell the story of cancer research—what it means, what it has accomplished, what directions it is taking—to the people of both countries.

Dr. John R. Heller, Director of the National Cancer Institute of the Public Health Service, speaking for the United States sponsor, described the program before the opening campaign rally of the American Cancer Society at Constitution Hall, Washington, D. C. In Canada, simultaneous announcement was made by the Honorable Paul Martin, Minister of the Department of National Health and Welfare. A half-hour documentary motion picture, tentatively titled "The Scientist vs. Cancer," was described as the keystone of the new program. A shorter version for popular distribution is contemplated.

Supplementary materials, ranging from study guides for teachers and discussion leaders to booklets for students and lay groups, will be produced by the sponsoring agencies, the National Cancer Institute and the Canadian Department of Health and Welfare. Literature will be distributed in both countries.

This is the first time that the two countries have combined efforts in sponsoring a cancer education program. United States financial support for the project is through a National Cancer Institute grant of $20,000 to the Medical Film Institute in New York City. A similar sum was given by the Department of Health and Welfare in Ottawa to the Canadian National Film Board.

Completion of the film and supporting materials is expected within a year. In this country they will be made available to schools and other interested groups through the Public Health Service and through official and voluntary health agencies.

GRANTS FOR RESEARCH IN NONFEDERAL INSTITUTIONS

Research grants totaling $2,040,900 to finance medical and allied research projects in nonfederal institutions in thirty states, Alaska, Puerto Rico and the District of Columbia, were announced March 17. The grants were awarded following recommendations by the National Advisory Health Council and approval by Surgeon General Leonard A. Scheele of the Public Health Service. The 175 approved projects are designed to provide new scientific data on a variety of human ailments; several are concerned with the use of new drugs; others with the relation of vitamins to human nutrition and susceptibility to respiratory infections; the nature of air-borne infections and their control, and the toxicity of DDT to farm animals and its accumulation in products consumed by man. The projects also include pilot experiments on the effect of variations in the time relationships of insemination and ovulation in determining sex, a study of factors associated with reproductive failure in mammals, and basic research on aging.

The National Advisory Health Council, which recommended the grants, is composed of leaders in the medical sciences, public health and public affairs. The grants program is administered by the National Institutes of Health through the Division of Research Grants and Fellowships.

NATIONWIDE ATTACK ON WATER POLLUTION

President Truman has appointed six nongovernment members of the Water Pollution Control Advisory Board which will assist in controlling the programs and policies authorized by Congress for a nationwide attack on water pollution. The Board will hold its first meeting in the near future to assist in developing support and technical aid in water pollution problems and to provide technical services to state and interstate agencies for tests. The chief responsibility for carrying out provisions of the Water Pollution Act (Public Law 845) rests with the Surgeon General of the Public Health Service, but grants to aid in planning and construction of treatment works will be administered by the Federal Works Agency.

NEW CONSULTANTS TO STUDY SECTIONS OF INSTITUTES OF HEALTH

The Surgeon General has announced the appointment of a new group of consultants in the Study Sections of the National Institutes of Health at Bethesda, Md. They will replace members whose terms expired at the end of 1948. The Study Sections meet periodically to evaluate applications for grants to support medical research projects at nonfederal institutions. Then the applications are submitted to the Advisory Councils of the Public Health Service before being recommended for approval by the Surgeon General. The new consultants and the study sections to which they have been appointed follow:

Consultant	Study Section
Dr. Arthur P. Richardson, Atlanta, Ga	Antibiotics
Dr. Harry H. Gordon, Denver	Antibiotics
Dr. Morris F. Shaffer, New Orleans	Bacteriology
Dr. Charles E. Smith, San Francisco	Bacteriology
Prof. William J. Darby, Nashville, Tenn	Biochemistry and nutrition
Prof. Wendell H. Griffith, Galveston, Texas	Biochemistry and nutrition
Dr. John K. Lewis, San Francisco	Cardiovascular
Dr. George E. Burch, New Orleans	Cardiovascular
Dr. W. C. Stadie, Philadelphia	Cardiovascular
Dr. Allan G. Brodie,	
Dr. Thomas J. Hill,	
Dr. Ernest W. Burge	
Dr. Louis K. Diamon	
Dr. John M. Henderson, New York	Malaria
Dr. George H. Boyd, Athens, Ga	Malaria
Dr. Samuel Soskin, Chicago	Metabolism and endocrinology
Dr. Arthur Grollman, Dallas, Texas	Metabolism and endocrinology
Dr. Douglas H. Sprunt, Kn	
Dr. Russell L. Holman, Ne	
Dr. Carl A. Dragstedt, Eva	
Dr. Harvey B. Haag, Richn	
Dr. Howard B. Lewis, Ann	
Dr. Carl Buck, Ann Arbor.	
Dr. Donald Sheehan, N	
Dr. Simeon T. Cantril,	
Dr. Robert R. Newell,	
Dr. Rolf Eliassen, Ne	
Dr. Harold B. Gotaas,	
Dr. Malcolm H. Merri	
Dr. Asa C. Chandler,	
Dr. P. Morales Otero, San Juan, Puerto Rico	Tropical diseases
Dr. William F. Friedewald, Atlanta, Ga	Virus and rickettsial
Dr. John H. Dingle, Cleveland	Virus and rickettsial

CANCER REGISTRATION

State health departments desiring to set up an active register of living persons with cancer can obtain forms and a manual explaining their use from the National Cancer Institute. A cancer register of this type is a control device that the Cancer Institute and the American Cancer Society hope will be adopted in each state. Report forms are designed to enable a state to obtain prompt and detailed data on the number, location, nature and condition of cases of cancer in the state. The registers would be helpful in measuring control progress, in planning more effective medical and public health procedures, in research, in evaluating results of various types of treatment, in providing special services for patients and in developing an improved follow-up system. The forms were designed by a committee of seven leading statisticians which began work on the project about a year ago.

Following are the types of forms used under the Cancer Register Plan: (1) for the private physician, a card form to expedite quick recording of confidential information on "every case of cancer, suspected cancer or other malignant tumor"; (2) for the hospital or tumor clinic, a letter-sized sheet for complete information on malignant neoplasms and method of treatment; (3) for the pathologist, a letter-sized sheet for complete histologic description of all tumors, and (4) for follow-up of treated cases, a letter-sized sheet to be filled out by hospita or tumor clinic at least once a year for the lifetime of each patient.

Type of examination, condition and location of patient are to be described. Each of the forms is to be dated and signed, and each provides space for the name, age, sex and race of the patient, plus case number and other information that would be helpful in cross referencing.

Requests for forms and help in their use should be addressed to Dr. John R. Heller, Director of the National Cancer Institute, Bethesda, Md.

MORPHOLOGY OF 1949 INFLUENZA

Viruses from the recent epidemic have been studied by Drs. W. J. Elford and I. M. Dawson of the National Institute for Medical Research in collaboration with the World Influenza Centre. Pictures of recently isolated viruses show predominantly long filamentous forms, 0.1 micron or less, in width, but up to 10 microns in length. These are mixed with varying amounts of "orthodox" round and intermediate forms. Long forms in influenza virus preparations were described in 1946 by Mosley and Wyckoff, but were never present regularly or abundantly enough to permit appraisal of their meaning. Now it is possible to study their behavior, and it is learned that their adsorption and elution from red cells are like that expected of influenza virus, and that they can be made visible under the ordinary microscope by dark ground illumination and can by this means be seen to be agglutinated by specific serums. These and other tests, while not conclusive, all indicate that these filaments represent a form of influenza virus. As yet they have been seen only in infected egg fluids or eluates of these. The long forms apparently become scantier on serial passage, especially through mice, and are relatively less numerous in "laboratory" strains of virus.

CHEST ROENTGEN SURVEYS

An eighteen unit roentgen team from the Tuberculosis Division of the U. S. Public Health Service assisted in the recent highly successful Seattle chest roentgen program sponsored by the city, county and state health departments and other local health groups. This team went to Tacoma, Wash., for a survey to be conducted there February 1-26, then on to Spokane, Wash., for another survey in April. A new eighteen unit team will cooperate likewise on a chest roentgen survey in Cleveland from March 9 to the middle of August.

ADDITIONAL INFLUENZA COOPERATING LABORATORIES

The Influenza Information Center of the National Institutes of Health (The Journal, January 8, p. 107) reports the addition of the following cooperating laboratories: Iowa State Hygienic Laboratory, University of Iowa, Iowa City; North Dakota State Department of Health Laboratory, Grand Forks, N. D.; University of Oregon Department of Bacteriology, Portland; Connaught Laboratories at the University of Toronto; Dominion Laboratories of Hygiene at Ottawa, and the Provincial Department of Health for Ontario at Toronto, Canada.

PERSONAL

The appointment of Senior Sanitary Engineer Sylvan C. Martin to head the Great Lakes Drainage Basin Office of the Division of Water Pollution Control at Chicago was announced by Assistant Surgeon General Mark D. Hollis, Chief of Engineering Activities of the Public Health Service, Federal Security Agency.

The Chicago office, located at 225 West Jackson Boulevard, is the third of fourteen proposed river basin offices being established to coordinate the federal water pollution control activities with state, interstate and local agencies as provided in the recently enacted Water Pollution Control Act.

Mr. Martin will work with the states in this basin on the development of a comprehensive program for the abatement of water pollution. This will involve the location of sources of pollution, determination of the most suitable use for the stream and ultimately the determination of water quality standards considering the conservation of waters for public water supplies, propagation of fish and aquatic life, recreational purposes, agricultural, industrial and other legitimate uses.

MISCELLANEOUS

NO CHARGE FOR RADIOISOTOPES FOR RESEARCH

The Atomic Energy Commission announces that it will make available to qualified cancer research workers in the United States without charge all radioisotopes now being sold. The new policy will make available on a free basis the radioisotopes of more than fifty additional elements, notable among which is the radioisotope of cobalt, which promises to become an effective substitute for radium in the treatment of cancer. Two other important cancer research materials that will be available without charge are the radioisotopes of gold and carbon. The new program has been made possible through improvements in the production of isotopes at the Oak Ridge National Laboratory at Tennessee and at the Argonne Laboratory in Chicago.

The free isotopes will be allocated for the following purposes: (1) research programs studying basic cellular metabolism of cancerous cells, (2) cancer investigations involving animal subjects, (3) experimental programs designed to evaluate the therapeutic use of radioactive materials. Applicants for materials must fulfil the requirements of the Atomic Energy Commission and offer assurance that there will be no resale or charges to patients for the isotopes thus procured. Applicants for radioisotopes for use in human beings must be approved by a subcommittee composed of leading physicians. The subcommittee has established the following criteria for the allocation of radioactive materials for human use:

1. The physician using the materials must be associated with a medical institution, hospital or clinic or other medical organization possessing adequate facilities for the proper use of such materials.

2. The use of the materials must meet with the approval of a local isotope committee of the hospital or medical institution with which the physician is associated.

3. Clinical users of radioactive materials must be physicians in good standing with their local medical society and must have had previous clinical experience with radiation or be directly collaborating with persons possessing such experience.

Inquiries from interested investigators should be addressed to the Isotopes Division, U. S. Atomic Energy Commission, Oak Ridge, Tenn.

PANAMA DECORATES ENTOMOLOGIST

The Republic of Panama has conferred its highest award, the Vasco Nunez de Balboa decoration, on James Zetek of the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, in recognition of his work on entomologic and other biologic problems of Panama and the Canal Zone, where he has worked for thirty-eight years. In 1911 he was appointed as entomologist with the old Isthmian Canal Commission. His duties were mostly concerned with the control of malaria, bubonic plague and yellow fever throughout the Canal Zone. While in this position, he discovered a method of determining the flight of malarial mosquitoes. In 1913 he was appointed state entomologist of the Republic of Panama, and later was named Director General of the National Exposition of Panama. In 1920 he was appointed specialist in tropical insects in the Bureau of Entomology, and he has been associated with the Bureau continuously since that time. At present he is in charge of the laboratory of the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture at Ancon, Canal Zone.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ARIZONA

Annual State Medical Meeting.—The Arizona State Medical Association will hold its annual meeting at the Hotel Pioneer, Tucson, May 8-11 under the presidency of Dr. Harold W. Kohl, Tucson. Out-of-state physicians on the program include:

Irving S. Wright, New York, Use of Anti-Coagulants in Thrombo-Embolic Diseases.
John H. Ebbs, Toronto, Canada, Pediatrics.
Winona G. Campbell, Denver, Diagnosis and Differential Diagnosis of Poliomyelitis.
Willis D. Gatch, Indianapolis, Cholecystitis.
Arthur B. Cecil, Los Angeles, Genital Abnormalities.

The banquet will be held the evening of May 10.

CALIFORNIA

Special Society Election.—The Los Angeles Society of Ophthalmology and Otolaryngology has elected Drs. Warren A. Wilson, president, and Victor Goodhill, secretary-treasurer for the coming year. The society meets the fourth Monday of each month from September to May inclusive at the Los Angeles County Medical Association Building.

Promotions on Medical Faculty.—Stanford University at Stanford has announced promotion of the following members of the medical faculty to professors: Donald J. Gray, Ph.D., and Hadley Kirkman, Ph.D., in the anatomy department; Dr. John K. Lewis in medicine and Dr. Donald E. King in surgery. Dr. Robert H. Dreisbach has been promoted to associate professor in pharmacology and Robert S. Turner, Ph.D., to associate professor of anatomy. Frederick A. Fuhrman, Ph.D., and Dr. Clarence M. Tinsley have been promoted to assistant professors in physiology and medicine, respectively.

CONNECTICUT

State Medical Society Annual Meeting.—The Connecticut State Medical Society will hold its annual meeting at the Teacher's College of Connecticut, New Britain, May 3-5. Visiting speakers at the general program include:

Arthur M. Fishberg, New York, Present Day Treatment of Hypertension.
John A. V. Davies, Boston, Present Day Concepts and Methods of Immunization of Children.
Willard M. Allen, St. Louis, Indications and Dangers in the Uses of Estrogens and Androgens.
William L. Estes Jr., Bethlehem, Pa., Reduction of Mortality in Surgery of the Aged.
Charles A. Flood, New York, Natural History of Peptic Ulcer.
J. William Hinton, New York, Surgical Management of Peptic Ulcer.
Albert J. Sullivan, New Orleans, Personality in Peptic Ulcer.
Edith H. Quimby, Sc.D., New York, Some Uses of Radioactive Isotopes in Medicine.
Edwin B. Astwood, Boston, Treatment of Hypertension with Antithyroid Compounds.
Philip S. Hench, Rochester, Minn., Management of Rheumatoid Arthritis.
Isidore S. Ravdin, Philadelphia, Treatment of Diseases of the Gallbladder and Common Duct.

At a Symposium on Nephritides Thursday afternoon Dr. John P. Merrill, Boston, will speak on "Use of the Artificial Kidney"; Dr. Kendall Emerson Jr., Boston, "Applications of the Artificial Kidney in Medicine," and Dr. J. Hartwell Harrison, Boston, "Management of Renal Insufficiency in Surgery."

At the annual dinner at the Indian Hill Country Club presentation of Fifty Year Membership Awards will be made. The Woman's Auxiliary to the society will meet May 4, at the country club. Besides section meetings of the society, there will be meetings for the state diabetes association, association of medical record librarians and occupational therapy association, and the Association of Medical Examiners, Association of Tumor Clinics and the state chapter of the American Physiotherapy Association.

ILLINOIS

Public Health Physicians Needed.—The Illinois Department of Public Health is in need of public health physicians, for which examinations are to be held May 21. State residence is waived for these applicants. Out-of-state applicants who want to take the written tests outside of Illinois should file this request with their applications well in advance of the closing date, April 30. Physicians are needed to perform professional work under the guidance of a public health physician in state or local public health programs, as well as public health physicians to plan and direct major public health service programs under direction. Salary ranges are from $360 to $460 and $480 to $580, respectively. Applications should be filed with the Illinois Civil Service Commission, 501 Armory Building, Springfield.

Graduate Conference.—A postgraduate conference, arranged by the Illinois State Medical Society, will be held in the Eighth Councilor District April 21 at the Wolford Hotel, Danville, with Dr. Harlan English, Danville, presiding. On the program will be:

Don C. Sutton, Chicago, Use of Anticoagulants in Vascular Disease.
Richard B. Capps, Chicago, Liver Function: Practical and Theoretical Aspects.
Leonard F. Weber, Chicago, Contact Dermatitis (Eczema), illustrated.
Frederick A. Jostes, St. Louis, Some Aspects of the Diagnosis and Treatment of Low Back Pain.
Michael H. Streicher, Chicago, Constipation: Clinical Application in Its Management, illustrated.

At the dinner session, Dr. Eric Oldberg, Chicago, will discuss "Diagnosis and Treatment of Head Injuries." The eighth councilor district comprises the counties of Champaign, Clark, Coles, Crawford, Cumberland, Douglas, Edgar, Jasper, Lawrence, Richland and Vermilion.

Chicago

Section Meeting of Heart Association.—The Clinical Section of the Chicago Heart Association will meet April 20 from 10 a. m. to 12:15 p. m. at St. Luke's Hospital. A series of eight short papers will be presented. All physicians are welcome to attend.

Hektoen Lecture.—The twenty-fifth Ludvig Hektoen Lecture of the Frank Billings Foundation will be delivered at the Palmer House on Friday evening, May 27, by Dr. William B. Wartman, professor and chairman of the department of pathology, Northwestern University Medical School, on "Bleeding into the Arterial Wall; Its Relation to Vascular Disease."

The Irish Memorial Lecture.—Dr. Paul A. O'Leary professor of dermatology and syphilology at the Mayo Foundation for Medical Education and Research, Rochester, Minn., will deliver the third annual Henry E. Irish Memorial Lecture at the University of Illinois College of Medicine on April 27 at 1 p. m. on "Changing Concepts of the Treatment of Syphilis." The lecture was endowed three years ago by Eta Chapter of Alpha Kappa Kappa as a memorial to Dr. Henry E. Irish, late head of the pediatrics department.

Personals.—Dr. Vida A. Latham, a graduate of Northwestern University Woman's Medical School, Chicago, 1895, has been named recipient of the 1949 citation of the Michigan Alumnae Club of Chicago as the outstanding alumna. She received a D.D.S. degree at the University of Michigan, Ann Arbor. Dr. Latham has served as a member of the staff of Northwestern University Woman's Medical School and of the Milwaukee College of Physicians and Surgeons.——Dr. Louis E. Schmidt, who was recently feted at Northwestern University on his eightieth birthday, will retire from active practice April 20 and move to Wausau, Wis.——Dr. Emil H. Grubbe, Chicago, has given his private library, a thousand volume collection dealing with roentgen therapy, to the John Crerar Library.——Dr. Joan Fleming, Chicago, a graduate of the University of Chicago, 1937, has been appointed assistant professor of psychiatry at the University of Illinois College of Medicine. Dr. Fleming was a resident in psychiatry at the Albert Merritt Billings Hospital from 1938 to 1940 and an instructor in psychiatry at the University of Chicago School of Medicine from 1939 to 1943.

Open New Laboratory.—The University of Illinois' new $400,000 Aero Medical and Physical Environment Laboratory, planned to study the effect of physical environment in health and disease, was officially opened April 11. Research programs will be undertaken immediately. Dr. Andrew C. Ivy, vice president of the University of Illinois in charge of the Chicago Professional Colleges, will serve as director. The staff is headed by Dr. John P. Marbarger, research director; Victor Guillemin Jr., Ph.D., biophysicist, and Maurice K. Fahnestock, M.S., engineering director. The building, located in the Medical Center District on Chicago's near West Side, has been under construction since September 1947. The research studies are expected to contribute to basic physiologic knowledge concerning the effect of physical environmental factors on healthy and diseased human beings. The studies also are designed to improve therapeutic procedures in the treatment of certain types of disease and to supplement present knowledge in the field of aviation medicine. Major installations planned for the future include a radiation test laboratory, a constant temperature, humidity and pressure room and a noise and vibration-free room.

KANSAS

Postgraduate Course in Surgery.—The University of Kansas School of Medicine, Lawrence–Kansas City, in cooperation with the Kansas Medical Society and the Kansas State Board of Health, has arranged a postgraduate course in general surgery April 25-27 for doctors in general practice as well as for surgeons of Kansas or adjacent states. In addition to the members of the University of Kansas faculty, guest instructors include Drs. Wayne C. Bartlett, Wichita; Guy A. Caldwell, New Orleans; Reed M. Nesbit, Ann Arbor, Mich., and Dallas B. Phemister, Chicago. The fee is $20. Complimentary enrolment is granted to interns and residents on identification by their hospital superintendents.

KENTUCKY

Regional Blood Center at Louisville.—The Louisville Regional Red Cross Blood Center, which will furnish blood free of charge in Louisville and the surrounding 75 mile area, will open in May at its new headquarters at 1470 South Third Street. Blood donations will be taken, and a supply will be available for those needing the blood. A "bloodmobile" will be operated to procure donations in the 27 surrounding counties participating in the program.

Retiring Dean of Medical School Honored.—At a testimonial dinner at the Louisville Country Club attended by more than two hundred physicians on the teaching staff of the University of Louisville School of Medicine, Dr. John Walker Moore, retiring dean, was the guest of honor. Among the speakers who paid him tribute was Dr. Irvin Abell, past president of the American Medical Association, who enumerated the many honors received by Dr. Moore in his twenty years as dean. Other physicians who gave testimonials on behalf of Dr. Moore were Drs. Guy Aud, former president of the Kentucky State Medical Association, James Bruce, Morris Flexner, R. Glen Spurling, Oscar O. Miller, Joseph C. Bell and H. Hart Hagan, all Louisville physicians. Many concurred in the opinion that Dr. Moore was responsible in great part for the improvement in the Louisville General Hospital and the medical school and its laboratories. Dr. Moore was presented with a television set and an engraved silver plaque commemorating the occasion.

MICHIGAN

Dr. Keane Named Emeritus Professor.—After forty-two years' association with Wayne University College of Medicine, Detroit, Dr. William E. Keane, former professor of urology, has been appointed emeritus professor of urology by the Detroit Board of Education. Dr. Keane, who is now serving as a consultant for Providence Hospital, joined the Wayne faculty in 1902. He has been professor since 1912 and head of the department of urology for seventeen years. Recently the staff of Providence Hospital presented the college of medicine with a portrait of Dr. Keane.

Meeting on Fractures and Other Traumas.—The Genesee County Medical Society and the Flint Regional Committee on Fractures and Other Traumas will present the fifth Annual Fracture and Other Traumas Program the afternoon of May 18 at the Merliss Brown Auditorium in Flint. Speakers on the program, all of Flint, are:

Richard L. Rapport, Practical Applications of the Basic Sciences of the Surgery of Trauma.
Harold W. Woughter, Transportation of the Injured.
Hardie B. Elliott, Receiving and First Aid Procedures.
Donald L. Bishop, Time Factors in Fracture Management.
Stephen M. Gelenger, Thoracic Trauma.
Edwin P. Vary, Abdominal Trauma.
Donald R. Brasie, Open Fractures.
Alvin M. Thompson, Early Recognition of Urological Injuries.
Hira E. Branch, Fractures in Children with Consideration of Seasonal Variations.
Max E. Dodds, Hip Fractures.

At the dinner meeting Mr. Stephen J. Roth, attorney general of Michigan, will speak on "The General Practitioner and His Medico-Legal Responsibilities."

MISSOURI

Society Election.—The Missouri State Medical Association, meeting in March, installed Dr. W. Wallis Smith, Springfield, as president, and chose Drs. William A. Bloom, Fayette, president elect; Harold E. Petersen, St. Joseph, secretary; Charles E. Hyndman, St. Louis, treasurer, and Francis T. H'Doubler, Springfield, as speaker of the house.

NEW JERSEY

State Medical Meeting.—The Medical Society of New Jersey will hold its annual meeting at the Ambassador Hotel, Atlantic City, April 25-28 under the presidency of Dr. J. Howard Hornberger, Roebling. The tentative program, arranged in eighteen individual sections for the entire membership of the society, lists the following out-of-state speakers:

Armand J. Quick, Milwaukee, The Coagulation Mechanism with Reference to Prothrombin.
Lloyd J. Thompson, Winston-Salem, N. C., Psychiatry in Relation to Obstetrics.
Ira S. Ross, Newark, Carbohydrate Metabolism and Cerebral Dysrhythmia, a Clinical Syndrome.
Barton R. Young, Philadelphia, Roentgenological Diagnosis of Gastro-Enterological Diseases.
Currier McEwen, New York, Development of the Campaign Against Rheumatism Abroad and in This Country.
Lester C. Mark, New York, Pre-Anesthetic Preparation in Children.
Frank H. Lahey, Boston, Some Developments in the Management of Thyroid Disease.
Andrew A. Marchetti and Edward B. Tuohy, Washington, D. C., Prevention of Infantile Mortality.
Joseph D. Aronson, Philadelphia, and Edwin R. Levine, Chicago, Symposium on BCG Vaccination for the Control of Tuberculosis.
Hugo Roesler, Philadelphia, Selected Features in the Electrocardiographic Diagnosis of Myocardial Infarction.
Nels A. Nelson, Baltimore, Use and Control of Penicillin.
Bruce Webster, New York, Clinical Results in the Use of Penicillin in the Treatment of Syphilis.
I. Arthur Mirsky, Cincinnati, The Patient with Diabetes Mellitus.
Bradley L. Coley, and Norman L. Higinbotham, New York, Significance of Cartilage in Abnormal Location.
Richard H. Overholt, Brookline, Mass., Second Most Important Silent Lesion.
Glen G. Gibson, Philadelphia, Surgery of the Extraocular Muscles.

NEW MEXICO

State Medical Convention.—The New Mexico Medical Society Convention will be held in Roswell May 5-7. Seven guest speakers will present the scientific papers, covering a variety of specific subjects of much general interest. Each paper will be followed by a discussion led by an association member. The speakers and their specialties are:

J. Mackenzie Brown, Los Angeles, otolaryngology.
M. Edward Davis, Chicago, obstetrics and gynecology.
E. Starr Judd, Rochester, Minn, medicine.
Earl D. McBride, Oklahoma City, orthopedic surgery.
Armand J. Quick, Milwaukee, biochemistry.

The annual banquet will be held Friday night at 8 o'clock. A section program on ophthalmology and otolaryngology will be held Thursday afternoon, Friday and Saturday.

NEW YORK

Four-County Clinic Day.—A clinic teaching day will be conducted April 20 at the Rochester Academy of Medicine under the sponsorship of the Medical Society for the Counties of Genesee, Orleans, Livingston and Wyoming. Four papers will be presented in the morning and afternoon sessions on the subjects of wide interest to general practitioners. Each paper will be followed by discussion.

Spring Teaching Day.—The Chemung County Medical Society, the state medical society and the New York State Department of Health will conduct a Spring Teaching Day at the Mark Twain Hotel, Elmira, April 20, beginning at 2 p. m. The program is as follows:

Lawrence E. Young, Rochester, Differential Diagnosis of Jaundice.
A. Wilbur Duryee, New York, Management of Occlusive Arterial Disease and Phlebitis.
Milton G. Bohrod, Rochester, Use of the Laboratory in Clinical Medicine: A Study in Clinicopathologic Correlation.

At the evening session, the fourth annual Elliott T. Bush Memorial Lecture will be given by Dr. Sidney M. Schaer, Buffalo, on "Blood, Protein and Fluid Balance."

Record Low Death Rate.—The New York State Department of Health reports that a new low death rate of 10.8 per 1,000 population was established in the state in 1948; 157,948 persons' deaths were recorded last year. The 1947 death rate was 11.1. The 1948 birth rate of 20.7 per 1,000 population was the highest in a quarter of a century with the exception of the 1947 rate of 22.8. New low death rates were established last year: for tuberculosis, 35.5 per 100,000 population, a decline of 1.3 for 1947, representing a drop of 1,200 in the number of deaths since 1943 and a decline of 24 per cent in the rate in five years; for influenza, 0.8 per 100,000, half the previous rate set in 1947; for pneumonia, 35.2, a drop from 39.6 in 1947; for chronic nephritis, 39.7, a drop from 42.5.. Streptococcic sore throat, including scarlet fever, took 23 lives compared with 36 in 1947. The chief adverse factor, the health department reported, was the continuous increase in deaths from cirrhosis of the liver. These numbered 2,454 in 1948, setting a death rate of 16.8 per 100,000 persons, the highest since 1912. There were 50 deaths from measles compared with 4 in 1947.

New York City

Brooklyn Psychiatric Society.—The inaugural meeting of the Brooklyn Psychiatric Society, established March 17, will be held April 21, 8:30 p. m. in the auditorium of the Medical Society of the County of Kings. Officers are Dr. Simon Rothenberg, president, and Dr. Morton Hand, secretary-treasurer.

Low Cost Roentgen Examinations.—Experiment.—Low cost chest roentgenograms are now available on Tuesdays and Thursdays at headquarters of the New York Tuberculosis and Health Association, 386 Fourth Avenue (Room 511). The service, available to anyone living or working in Manhattan, the Bronx or on Staten Island, provides roentgenograms for $1. This fee also includes the reading of the roentgenogram and a report to the patient. If preferred, the report may be sent to any designated physician. The service is for an experimental period until May 19.

Center for Psychotherapy.—The Postgraduate Center for Psychotherapy, the training associate of the Institute for Research in Psychotherapy, has been granted a provisional charter from the Board of Regents of the New York State Educational Department. The center offers intensive training for psychiatrists in psychotherapy and also individual courses for general practitioners and nonpsychiatric medical specialists in psychotherapy and psychosomatic medicine. The primary aim of the program is to encourage the development of teams of psychiatrists, psychologists and social workers who can organize and operate community psychiatric clinics. The courses of instruction include practical demonstrations in psychotherapy as well as lectures. Before the psychiatric student completes his training he has had personal experience under supervision in the management of various types of cases. Further information on this program may be obtained by writing to Stephen P. Jewett, M.D., dean, or to Miss Janice Hatcher, registrar, Postgraduate Center for Psychotherapy, Inc., 218 East 70th Street, New York 21.

Personals.—Dr. Mary M. Crawford, medical director for the Federal Reserve Bank of New York, has been appointed a national vice chairman for Cornell University's $12,500,000 Greater Cornell Fund campaign. She is a former president of the Cornell Alumni Association.——Dr. George Baehr, retiring president of the New York Academy of Medicine, has been elected chairman of the board of directors of the Health Insurance Plan of Greater New York, succeeding Dr. Willard C. Rappleye, dean of the Columbia University College of Physicians and Surgeons.——Dr. Condict W. Cutler Jr., director of surgery at the Goldwater Memorial Hospital on Welfare Island, has been elected a trustee of Columbia University.——Dr. Emanuel D. Friedman was a guest of honor at the annual dinner of the Alumni of New York University College of Medicine on February 21 on completion of forty years of continuous teaching at his alma mater.——Dr. Frank E. Adair, Memorial Hospital for the Treatment of Cancer and Allied Diseases, will deliver the Lord Moynihan Lecture in London before the Royal College of Surgeons on March 23, on "Surgical Problems Involving Cancer of the Breast."

TEXAS

Annual Meeting of State Medical Association.—The State Medical Association of Texas will hold its annual meeting in San Antonio May 2-5 with registration headquarters at the Municipal Auditorium. Guest speakers at the general meetings include:

William L. Pressly, Due West, S. C., The Human Side of Medicine.
Willis E. Brown, Little Rock, Ark., Cytologic Technique in the Diagnosis of Uterine Cancer.
Lauren V. Ackerman, St. Louis, Responsibility of the Pathologist in the Diagnosis and Treatment of Cancer.
W. Paul Holbrook, Tucson, Ariz., Problem of Arthritis and Rheumatism.
Gaylord W. Anderson, Minneapolis, Certain Epidemiologic Concepts of Poliomyelitis.
Archibald L. Hoyne, Chicago, Modern Treatment of Meningitis.
John S. Harter, Louisville, Ky., Bronchiectasis.
Cecil Striker, Cincinnati, Diabetes Mellitus—An Orientation.
Samuel F. Marshall, Boston, Surgical Treatment of Peptic Ulcer.
Byrl R. Kirklin, Rochester, Minn., Diaphragmatic Hernia.
Charles I. Johnson, Boston, Intracranial Complications of Otogenic and Rhinogenic Disease.

Section meetings will be held in general practice; medicine and pediatrics; surgery; obstetrics and gynecology; eye, ear, nose and throat; radiology and physical medicine; public health, and pathology. Both scientific and technical exhibits and motion pictures will be shown. Clinical luncheons will be held Wednesday and Thursday, and the President's Reception and Ball will take place Tuesday night. The Woman's Auxiliary will have headquarters at the Menger Hotel. Numerous state medical organizations will hold meetings in conjunction with the state medical association, and alumni and fraternities have scheduled banquets.

UTAH

Cancer Symposium.—The Cancer Teaching Program of the University of Utah College of Medicine, Salt Lake City, and the Bureau of Cancer Control of the State Department of Health will present the Second Annual Cancer Symposium April 25-27. Guest speakers will include Drs. George T. Pack, New York; Charles E. McLennan and Henry S. Kaplan, San Francisco; Rulon W. Rawson, New York, and Howard L. Richarson, Portland, Ore.

WEST VIRGINIA

Meeting of Academy of Ophthalmology and Otolaryngology.—The second annual meeting of the West Virginia Academy of Ophthalmology and Otolaryngology will be held May 13-14 at the Shenandoah Hotel in Martinsburg. Speakers on the scientific program are as follows:

Glen G. Gibson, Philadelphia, Medical and Neurological Ophthalmology.
G. Slaughter Fitz-Hugh, Charlottesville, Facio Maxillary Fractures.
Walter O. Klingman, Charlottesville, Headaches.
Charles T. St. Clair, Bluefield, Allergic Manifestations in the Eye.
James K. Stewart, Wheeling, Experiences with Penicillin in Acute Otitis Media.

The film "Integrated Orbital Implant" will be shown. The annual banquet will be held at the Shenandoah Hotel.

Open Meeting on Health Insurance.—Dr. George F. Lull, Secretary and General Manager of the American Medical Association, Chicago, will be guest speaker at an open meeting in Charleston, April 27, sponsored by the Woman's Auxiliary to the Kanawha Medical Society. His topic will be "What Compulsory Health Insurance Means to the People." The meeting, which will be held at the Daniel Boone Hotel, is expected to draw an attendance in excess of 300 representatives of local civic, service and welfare organizations, as well as representatives of many other professions and businesses and manufacturing organizations in the Kanawha Valley. A round table discussion of the proposed federal compulsory health insurance plan, led by Dr. Lull, will follow the speaking program. The spring meeting of the Auxiliary to the West Virginia State Medical Association has been called for the same day, and it is expected that all county auxiliaries will be represented at the luncheon.

GENERAL

Dr. Spencer to Direct Kress Foundation.—Herbert L. Spencer, Ph.D., president of Bucknell University, Lewisburg, Pa., has resigned to become executive director on July 1 of the Samuel H. Kress Foundation, New York. The Kress Foundation was established in 1929 to "promote the moral, physical and mental welfare, and progress of the human race." In January it gave $8,000,000 to the projected New York University-Bellevue Medical Center (THE JOURNAL, January 29, page 319).

Meetings on Mental Deficiency.—The American Association on Mental Deficiency and the first Pan-American Congress will meet at the Roosevelt Hotel, New Orleans, April 26-30, under the presidency of Dr. Edward J. Humphreys, Trenton, N. J. Section meetings will be held on education, general research and reports, state programs for care and supervision of the mentally deficient, present status and future in the fields of mental deficiency, medicine and psychiatry, education and administration.

Rehabilitation Convention.—The Association for Physical and Mental Rehabilitation will hold its annual convention at the Hotel New Yorker, New York, May 18-21. More than 500 representatives from the nation's Veterans Administration, army, navy and civilian rehabilitation agencies will be present. Mr. Leo Berner, chief corrective therapist of the Bronx veterans hospital, is chairman for the convention. For further information, address H. S. Wettstein, Corrective Therapy Section, Veterans Administration Hospital, Bronx, New York.

Program for Epileptic Children.—Educational and medical programs planned to meet the individual needs of the child with epilepsy and to fit the resources of the community were recommended by the International Council for Exceptional Children at its twenty-seventh annual meeting held in San Francisco, Feb. 27-March 2. A special committee on epilepsy, which met twice last year, will be enlarged this year to carry on a program of public education about epilepsy in order that the attitude of parents of "normal" children will not limit educational opportunities for epileptic children. New organizations to be represented on the committee are the Parent-Teachers Association, the National Rehabilitation Association and the National Association of State Directors of Elementary Education. The council commended the American Epilepsy League for its assistance and cooperation in making the meetings of the special committee possible.

Annual Meeting of Psychosomatic Society.—The American Psychosomatic Society will hold its annual meeting April 30 and May 1 at the Chalfonte-Haddon Hall at Atlantic City under the presidency of Dr. Leon J. Saul, Philadelphia. The program, arranged under the chairmanship of Dr. Roy R. Grinker, Chicago, includes papers on "Emotional Factors in the Precipitation of Diabetic Acidosis" by Drs. Harold Rosen and Theodore Lidz of Baltimore; "The Role of the Unconscious in Gastric Physiology; Experimental Observations" by five physicians from Mount Sinai Hospital, New York, and "Treatment of Psychosomatic Disorders by Nonpsychiatric Physicians" by a group of physicians from the University of Cincinnati. A panel discussion on "The Psychosomatic Aspects of Hypertension" will be held under the chairmanship of Dr. Carl A. Binger, New York. Discussion by one or more physicians will follow presentation of each paper or group of papers.

National Survey to Establish Incidence of Multiple Sclerosis.—The National Multiple Sclerosis Society is conducting a nationwide fact-finding program aimed at obtaining figures on the incidence of multiple sclerosis. The first project was a statistical survey in the city of New Orleans and vicinity conducted on a grant made by the society to Tulane University. The survey has been completed and results are now being tabulated and evaluated. Similar projects are under way in the San Francisco and Denver areas supported by grants made to Stanford University and the University of Colorado. Parallel surveys in cooperation with the U. S. Public Health Service are planned for Minneapolis and Boston, all to be completed this year. It is expected that the survey results will allow a reasonably accurate estimate of the number of multiple sclerosis cases in the United States.

College of Physicians Awards.—The American College of Physicians, meeting in New York March 28-April 1, presented the following awards, in addition to the James D. Bruce Memorial Award (The Journal, April 9, p. 1014). The John Phillips Memorial Award was given to Dr. Edwin B. Astwood, research professor of medicine at Tufts College Medical School, Boston, for developing "new ways to curb the hyperactive thyroid" and stimulating "a fresh search for the treatment of exophthalmic goiter by medical rather than by surgical means." The Alfred Stengel Memorial Award was given to Dr. James J. Waring, professor of medicine at the University of Colorado School of Medicine, Denver, in recognition "not only of loyalty and service to the college, but also of outstanding influence in the advancement of medical education, practice and research, in the perpetuation of the history and traditions of medicine and medical ethics and in the maintenance of the dignity and efficiency of internal medicine in its relation to public welfare."

Program of International Congress on Rheumatic Diseases.—More than 150 physicians from foreign countries are expected at the International Congress on Rheumatic Diseases to be held at the Waldorf-Astoria, New York, May 30 to June 3. Papers will be presented in the mornings, and afternoon clinics will be held at several of the New York hospitals. Papers have been accepted from the following foreign speakers:

Lord Horder, London, Rheumatism, a National Problem.

Jacques Forestier, Aix-les-Bains, France, Treatment of Progressive Rheumatism with Copper Salts.

Eric Jonsson, Stockholm, Relations between Rheumatic Fever and Rheumatoid Arthritis.

Imre Barsi-Basch, Budapest, Transfusions of Blood from Pregnant Women in Patients with Rheumatoid Arthritis.

Prof. S. de Seze, Paris, Procaine Infiltration in Painful Musculoskeletal Disorders.

Svend Clemmesen, Copenhagen, Statistical Analysis of 1000 Cases of Rheumatoid Arthritis in Relation to Insidious and Acute Onset, Menopause, Pregnancy, Psoriasis, Ankylosing Spondylitis and Still's Disease.

William Tegner, London, Some Aspects of Psychogenic Rheumatism.

Henrik Seyfarth, Oslo, Muscle Soreness and Myosis as a Symptom of Chronic Overstraining, Especially in Neurotics.

P. Barcelo, Barcelona, Spain, Chronic Polyarthritis and Psoriasis.

Veikko Laine, Heinolan, Finland, Involvement of the Nervous System in Rheumatoid Arthritis.

Fernando H. Ramos, Montevideo, Periarthritis of the Shoulder.

Official languages of the congress will be English, French and Spanish, but instantaneous translations of the scientific papers at the plenary sessions will be made by I. B. M. wireless system. The meeting is open and the registration fee is $10.

Regional Conferences on Local Health Units.—The National Advisory Committee on Local Health Units of the National Health Council has planned the third and fourth in a series of regional conferences on local health units. The two conferences currently planned are one in Kansas City, Mo., April 20-21, to include Arkansas, Kansas, Louisiana, Missouri and Oklahoma and a second in Omaha, Neb., April 25-27, to include Iowa, Minnesota, Nebraska, North Dakota and South Dakota. The conferences will feature group discussions and group decisions as in the case of two earlier conferences in Mitchell, Ind., and Salt Lake City. State teams of ten to fifteen persons, representing a cross section of lay and professional interest in the development of more adequate local health services, will be selected by the respective state health officers. Resource persons for the conferences will be furnished by such national agencies as the American Heart Association and the American Public Health Association, in addition to the National Health Council. The primary purpose of the national conferences that have been held or planned is to extend coverage by local full time protective health services to every person in the United States and to increase the quality of existing services.

Joint Annual Meetings of Tuberculosis Societies.—The National Tuberculosis Association, the American Trudeau Society and the National Conference of Tuberculosis Secretaries will hold joint annual meetings at the Hotel Book-Cadillac, Detroit, May 2-6. Several panel discussions and symposiums are included in the program:

MEDICAL SECTION

Streptomycin and Tuberculosis, Dumont Clark, Denver, chairman.

Symposium on Extrapulmonary Tuberculosis, John K. Lattimer, New York, and others.

Laboratory and Research, Guy P. Youmans, Chicago, chairman.

Non-Tuberculosis Diseases, Paul H. Holinger, Chicago, chairman.

Symposium on Segmental Bronchopulmonary Anatomy, Chevalier L. Jackson, Philadelphia, and Edward M. Kent, Pittsburgh.

Surgery, Paul C. Samson, Oakland, Calif., chairman.

PUBLIC HEALTH SECTION

Analysis and Evaluation of a Tuberculosis Control Program, Ira V. Hiscock, Sc.D., New Haven, Conn., chairman.

Tuberculosis Leadership in Health Education—*Can It Be Maintained?* Iago Galdston, New York, chairman.

Spotlighting the Patient and His Family, N. Stanley Lincoln, Ithaca, N. Y., chairman.

Basic Community Organization, James W. Parker, Detroit, chairman.

The presidential addresses will be delivered Tuesday evening by Dr. Herbert L. Mantz, Kansas City, Mo., of the National Tuberculosis Association; Dr. H. Corwin Hinshaw, Rochester, Minn., of the American Trudeau Society, and Charles Kurtzhalz, Philadelphia, of the National Conference of Tuberculosis Secretaries.

FOREIGN

French Congress of Gynecology.—The thirteenth French Congress of Gynecology will be held in Biarritz June 7-11 under the presidency of Dr. Marcel Senechal of Paris. Among the speakers will be Drs. Andre Binet, professor of gynecology of the Faculty of Nancy; Raoul Palmer and Paul Ulrich, both of Paris. Membership fees have been reduced to 1,000 francs. Registration must be made before May 1 to the treasurer, Dr. A. Guillemin, 21 Avenue d'Eylau, Paris-XVI^{me}.

At the close of the French congress the society will organize an International Congress of Gynecology to meet in Paris June 23-27, 1951. At this meeting a series of conferences will be held by the eminent gynecologists of various nations who will discuss gynecologic diagnosis and therapy. General secretary in charge of scientific papers will be Dr. Claude Beclére of Paris; general secretary in charge of organization of the congress will be Dr. Maurice Fabre of Paris. Address all inquiries to Dr. Maurice Fabre 1, rue Jules-Lefebvre, Paris (IX).

Marriages

Harry Albert Hanson, Albert Lea, Minn., to Miss Dorothy Harriet Williams in Rochester, N. Y., February 5.

John William Baird, Henderson, Tenn., to Miss Florence De Luca of Greenwich, Conn., in Boston, February 7.

Ralph Woodworth Haswell, Newport News, Va., to Miss Ruth Edna Emery in Williamson, N. Y., December 31.

Robert E. Nelson, Brooklyn, to Miss Mary E. Rostzinko of Bangor, Me., in Merrick, N. Y., February 26.

Edgar Louis Lipton, West Los Angeles, Calif., to Miss Marie Lucile Belk of Goldsboro, N. C., February 19.

Robert Leon Williams, Albany, N. Y., to Miss Shirley Glenn Miller of Warrensburg, February 5.

Thomas Henry Mercer Jr., Oak Park, Ill., to Dr. Jeanne Emily Kehoe, Chicago, February 12.

Max J. Fischer to Mrs. Joan Kaufman Nathan, both of Washington, D. C., February 24.

Lyman B. Hollingsworth, Boise, Idaho, to Mrs. Barbara Butler of Seattle, February 26.

Aaron Weisberg, Brooklyn, to Miss Ruth Mintz of Boston, February 5.

Deaths

Gilbert Cottam ⊕ Pierre, S. D.; born in Manchester, England, Aug. 2, 1873; Marion-Sims College of Medicine, St. Louis, 1893; from 1943 to July 1948 superintendent of the South Dakota State Board of Health; member of the House of Delegates of the American Medical Association in 1924; past president of the South Dakota State Medical Association and the Sioux Valley Medical Association; member of the Western Surgical Association, Minneapolis Surgical Society, Minnesota Pathological Society and the American Trudeau Society; fellow of the American College of Surgeons; member of the founders group of the American Board of Surgery; served overseas during World War I; formerly on the staffs of McKennan and Sioux Valley hospitals in Sioux Falls; served as editor of the *Bulletin of the Hennepin County (Minn.) Medical Society,* on the editorial board of the *Journal Lancet* and as associate editor of *Minnesota Medicine;* died March 4, aged 75, of terminal pneumonia and chronic myocarditis.

John Lucius McGehee ⊕ Memphis, Tenn.; born in Como, Miss., Jan. 2, 1879; Memphis (Tenn.) Hospital Medical College, 1901; formerly professor of surgery at the University of Tennessee College of Medicine; member of the founders group of the American Board of Surgery; past vice president of the Southern Surgical Association; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; served during World War I; on the staffs of John Gaston Hospital and Baptist Hospital, where he died February 16, aged 70, of acute pulmonary edema, bronchial asthma and chronic emphysema.

Philip Ray Appel ⊕ Detroit; Detroit College of Medicine and Surgery, 1934; died February 8, aged 39, of coronary thrombosis.

Leo Awotin ⊕ Chicago; Indiana University School of Medicine, Indianapolis, 1916; died February 11, aged 73, of arteriosclerosis and coronary occlusion.

Lewis Warner Beery, Canal Winchester, Ohio; Long Island College Hospital, Brooklyn, 1878; president of the Peoples Bank; died in the Grant Hospital, Columbus, January 24, aged 97, of nephritis.

Cleo D. Bell ⊕ Pittsburg, Kan.; University of Kansas School of Medicine, Kansas City, Kan., 1931; member of the American Society of Anesthetists; served overseas during World War II; affiliated with Mount Carmel Hospital; died January 16, aged 45, of heart disease.

Oswin W. Berky, Bally, Pa.; Medico-Chirurgical College of Philadelphia, 1901; served as burgess, postmaster, bank director and school director; affiliated with the Sacred Heart Hospital, Allentown; died in the Allentown Hospital January 16, aged 73, of hypostatic pulmonary edema.

Frances Sage Bradley, Washington, D. C.; Cornell University Medical College, New York, 1899; during World War I established a children's bureau in France under the supervision of the American Red Cross; formerly a special agent for the U. S. Children's Bureau, serving as director of the bureau of child hygiene of the Arkansas State Board of Health; served as director of the child welfare division of the State Board of Health of Montana; died February 11, aged 82, of uremia.

Russell George Brando, Detroit; Detroit College of Medicine and Surgery, 1927; member of the American Medical Association; died January 3, aged 49, of coronary disease.

Charles Percy Brown, El Paso, Texas; Rush Medical College, Chicago, 1902; member of the American Medical Association; for two years secretary of the Southwestern Medical Association; served during World War I; died recently, aged 73, of arteriosclerosis.

Leroy Capehart, Chattanooga, Tenn.; University of West Tennessee College of Medicine and Surgery, Memphis, 1918; died in the Collins Chapel Connectional Hospital, Memphis, January 23, aged 55, of uremia.

Thomas Joseph Carney ⊕ Alma, Mich.; Long Island College Hospital, Brooklyn, 1898; fellow of the American College of Surgeons; part owner of the Carney-Wilcox-Miller Hospital; formerly mayor of Alma; died January 3, aged 79, of arteriosclerotic heart disease and cerebral hemorrhage with left hemiplegia.

William T. Collum, Red Bay, Ala.; Memphis (Tenn.) Hospital Medical College, 1905; died in North Mississippi Community Hospital, Tupelo, Miss., January 14, aged 71.

William Duncan Crosby ⊕ Louisville, Ky.; University of Louisville School of Medicine, 1938; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; associate in surgery at his alma mater; served overseas during World War II; on the the staffs of Norton Memorial Infirmary, Kentucky Baptist Hospital and St. Joseph's Infirmary; died January 11, aged 35, of coronary occlusion.

Edward Cussler ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1904; assistant professor of clinical medicine at Cornell University Medical College; affiliated with the New York Hospital-Westchester Division in White Plains and the New York Hospital; served in France during World War I; died suddenly, February 2, aged 66, of coronary thrombosis.

William Everts Downing, Clovis, Calif.; Cooper Medical College, San Francisco, 1903; died January 28, aged 68.

Frederick Arthur Drake, Lanesboro, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1896; member of the American Medical Association; formerly mayor of the village, on the school board and village health officer; died January 31, aged 78, of coronary occlusion.

Howard Justin Driscoll, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1931; served during World War II; affiliated with Fitzgerald Mercy Hospital, Darby; died January 26, aged 43, of coronary occlusion.

Thomas Balfour Dunn ⊕ Berkeley, Calif.; University of California Medical School, San Francisco, 1916; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; at one time an officer in the regular navy; lecturer in tropical medicine at the University of California Medical School; served on the staffs of the Samuel Merritt, Peralta and Providence hospitals in Oakland; died in Fresno, December 28, aged 62.

Dwight Molyneaux Ervin, San Francisco; University of Cincinnati College of Medicine, 1917; died in Southern Pacific Hospital January 12, aged 63, of glioblastoma.

Orris Orville Force, Monrovia, Calif.; Northwestern University Medical School, Chicago, 1901; died January 29, aged 85, of cerebral thrombosis.

Herbert Lentz Freeland ⊕ Lieutenant Colonel, U. S. Army, retired, Pasadena, Calif.; St. Louis University School of Medicine, 1906; served during World War I; entered the medical corps of the U. S. Army in 1917 as a first lieutenant; promoted through the various grades to that of lieutenant colonel in 1937; retired on July 30, 1940 for disability in line of duty; died January 11, aged 72, of heart disease.

Leo William Fulton Jr., Beggs, Okla.; St. Louis University School of Medicine, 1906; died December 4, aged 66.

Charles Joseph Carroll Gillon ⊕ Taunton, Mass.; Harvard Medical School, Boston, 1915; served during World War I; on the staffs of the Morton and Taunton State hospitals; died January 15, aged 59, of cerebral hemorrhage.

John Douglas Graham, Devils Lake, N. D.; University of Toronto Faculty of Medicine, Toronto, Canada, 1923; member of the American Medical Association; member of the board of education; affiliated with Mercy Hospital, where he died January 26, aged 47, of cerebral thrombosis and myocardial infarction.

John Francis Grant ⊕ Long Beach, Calif.; Northwestern University Medical School, Chicago, 1917; affiliated with Community Hospital and Seaside Memorial Hospital, where he died January 18, aged 57, of coronary thrombosis and uremia.

David Eugene Harriman, York Village, Me.; University of Vermont College of Medicine, Burlington, 1898; member of the American Medeical Association and the Massachusetts Medical Society; died January 18, aged 74, of coronary disease.

Charles Bonnell Hatfield, Bloomdale, Ohio; Kentucky School of Medicine, Louisville, 1893; died January 12, aged 87, of heart disease.

George Roberts Hetrich, Birdsboro, Pa.; Jefferson Medical College of Philadelphia, 1923; member of the American Medical Association; affiliated with St. Joseph's and Reading hospitals in Reading; died January 25, aged 55, of bronchogenic carcinoma of the lungs.

Henry Hulst, Grand Rapids, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1888; specialist certified by the American Board of Radiology, Inc.; member of the American Roentgen Ray Society, of which he had been past president, and the American College of Radiology; died January 2, aged 89, of cerebral thrombosis.

Frank Hyde, Eminence, Mo.; Marion-Sims College of Medicine, St. Louis, 1895; member of the American Medical Association; president of the Carter-Shannon Counties Medical Society; served as mayor, and as president of the school board; died in Poplar Bluff (Mo.) Hospital January 9, aged 77, of coronary embolism.

William Thomas Johnson, Corvallis, Ore.; St. Louis University School of Medicine, 1907; member of the American Medical Association; past president of the Oregon State Medical Society; served as city and county health officer, mayor and state representative; on the staff of the Good Samaritan Hospital; died in Waldport, December 19, aged 72, of coronary occlusion.

Robert Joseph Kearns, Spokane, Wash.; Northwestern University Medical School, Chicago, 1903; member of the American Medical Association: died in the Sacred Heart Hospital January 1, aged 73, of cerebral hemorrhage.

Ralph Burnsell Kettlewell, Sauk Centre, Minn.; University of Minnesota Medical School, Minneapolis, 1932; member of the American Medical Association; served during World War II; died in the Abbott Hospital, Minneapolis, January 1, aged 45, of coronary thrombosis.

Donald H. Leeper, Hiddenite, N. C.; North Carolina Medical College, Charlotte, 1906; died in the Davis Hospital, Statesville, January 19, aged 69, of cancer of the colon.

Leonard Warren Levine ⊕ Ellington, Conn.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1937; past president of the Tolland County Medical Society; county jail physician; died in the Rockville (Conn.) City Hospital January 2, aged 35, of coronary thrombosis.

Francis H. Liesen, Quincy, Ill.; Fort Wayne (Ind.) College of Medicine, 1897; died in St. Mary's Hospital January 18, aged 77, of anthrax and myocardial infarct.

Robert Clarence Lowry, Boyle, Miss. (licensed in Mississippi in 1907); member of the American Medical Association; died January 12, aged 68, of thrombosis.

Edward Ames Lyon, Chicago; Rush Medical College, Chicago, 1896; died January 10, aged 77, of coronary thrombosis.

Alexander Edwin McCornack ⊕ Elgin, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1911; affiliated with St. Joseph's Hospital and the Sherman Hospital, where he died January 26, aged 63, of coronary artery disease.

John McIntyre, Chicago; Jenner Medical College, Chicago, 1913; died in Cook County Hospital January 15, aged 92, of carcinoma of the palate.

Howard James Maldeis, Baltimore; University of Maryland School of Medicine, Baltimore, 1903; member of the American Medical Association; associate professor of medical jurisprudence at his alma mater; specialist certified by the American Board of Pathology, Inc.; member of the American Society of Clinical Pathologists; chief medical examiner of Maryland; affiliated with St. Joseph's Hospital, Franklin Square Hospital and University Hospital, where he died January 15, aged 69, of carcinoma of the pancreas.

Frank Lloyd Matson, Wellsburg, W. Va.; University of Louisville (Ky.) Medical Department, 1906; member of the American Medical Association; secretary of the Brook County Medical Society; died January 2, aged 70, of coronary thrombosis.

Louis Morgan Mooney ⊕ New York; University and Bellevue Hospital Medical College, New York, 1899; served on the staffs of Polyclinic, St. Elizabeth and Misericordia hospitals; died January 19, aged 88, of arteriosclerosis.

Myron Brill Morris, Staten Island, N. Y.; Syracuse University College of Medicine, 1904; affiliated with St. Vincent's Hospital, where he died January 4, aged 68, of generalized arteriosclerosis.

William Atwood Mowry ⊕ Madison, Wis.; Northwestern University Medical School, Chicago, 1910; clinical professor of medicine at the University of Wisconsin Medical School; specialist certified by the American Board of Internal Medicine; past president of the Chicago Society of Allergy; affiliated with the State of Wisconsin General Hospital; died January 8, aged 68, of hypertension and arteriosclerotic heart disease.

William V. Nelson ⊕ Milwaukee; Milwaukee Medical College, 1905; formerly secretary of the Milwaukee County Medical Society; served on the staff of St. Luke's Hospital; died January 14, aged 68, of coronary thrombosis.

Michael J. Nestor ⊕ Providence, R. I.; College of Physicians and Surgeons, Baltimore, 1905; past president and treasurer of the Rhode Island Public Health Association; city registrar and superintendent of the city health department for many years; served on the staffs of the Rhode Island Hospital, St. Joseph's Hospital and Providence Lying-In Hospital; member of the American Public Health Association; died in the Charles V. Chapin Hospital January 9, aged 72, of cerebral hemorrhage.

Clarence Willard Olson, Arcadia, Fla.; University of Illinois College of Medicine, Chicago, 1917; resident physician at the Florida State Hospital; died January 14, aged 54, of coronary occlusion, diabetes mellitus, pneumonia and fracture of clavicle and ribs due to an automobile accident.

Michael Francis O'Shea, Staten Island, N. Y.; Bellevue Hospital Medical College, New York, 1898; died January 1, aged 77.

Orlando Francis Partridge, Mattoon, Wis.; Milwaukee Medical College, 1896; member of the American Medical Association; died in Shawano, December 29, aged 76, of chronic myocarditis with decompensation.

Albert Edward Peart, St. Louis; St. Louis College of Physicians and Surgeons, 1910; died in the City Hospital January 21, aged 76.

Clarence Eugene Peery ⊕ Majestic, Ky.; Loyola University School of Medicine, Chicago, 1918; died in McMinnville, Tenn., February 2, aged 57, of intestinal obstruction.

John Ralph Pinion, Caruthersville, Mo.; University of Missouri School of Medicine, Columbia, 1909; member of the American Medical Association; died January 12, aged 60, of coronary thrombosis following operation for appendicitis.

Alfred Carlyle Prentice ⊕ Endicott, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1901; member of the House of Delegates of the American Medical Association in 1920; at various times affiliated with Wilson Memorial Hospital, Johnson City, Vanderbilt Clinic, French Hospital, Erlanger Home for Crippled Children and the Baptist Home for the Aged in New York; on the staff of the Ideal Hospital; died in Packer Hospital, Sayre, Pa.; January 13, aged 73, of acute pulmonary edema.

Leonard Eugene Ragsdale, Williamsport, Tenn.; Bellevue Hospital Medical College, New York, 1897; member of the American Medical Association; past president of the Middle Tennessee Medical Society and the Maury County Medical Society; formerly superintendent of the Tennessee Home for Feebleminded and the Central State Hospital in Nashville; died January 23, aged 73.

Michael Napoleon Ratzan, Brooklyn; Medico-Chirurgical College of Philadelphia, 1906; affiliated with the Unity, Crown Heights and Williamsburg hospitals; died January 20, aged 67, of pulmonary embolus.

Eduard Cecil Reynolds, Independence, Kan.; Bennett Medical College, Chicago, 1907; died suddenly, January 10, aged 72, of coronary occlusion.

George Nelson Richmond, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1895; member of the American Medical Association; affiliated with Presbyterian and University of Pennsylvania hospitals; died January 9, aged 79, of diabetes mellitus.

Herbert Ewing Riddel, Sarasota, Fla.; Hahnemann Medical College and Hospital of Philadelphia, 1898; served during World War I and was awarded the Purple Heart; died January 4, aged 74, of abdominal aneurysm.

Joseph Franklin Roe, Binghamton, N. Y.; Cleveland Medical College, 1894; formerly member of the city planning commission and the board of managers of the City Hospital; died January 8, aged 77, of coronary thrombosis.

Abraham H. Salzberg, Brooklyn; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1922; specialist certified by the American Board of Obstetrics and Gynecology; member of the American Medical Association; fellow of the American College of Surgeons; on the staff of Jewish Hospital; died February 4, aged 51, of coronary occlusion.

David Gentner Sampson ⊕ Lisbon, N. D.; Kansas City (Mo.) Hahnemann Medical College, 1914; served during World War I; for many years district physician at Pedro Miguel, Canal Zone; died January 13, aged 57, of coronary thrombosis.

Frank E. Selover, Saginaw, Ore.; University of Oregon Medical School, Portland, 1897; died January 4, aged 76, of arteriosclerosis and bronchopneumonia.

Robert George Shaw, Detroit; Detroit College of Medicine, 1907; member of the American Medical Association; member of the staff of St. Mary's Hospital, where he died January 20, aged 82, of generalized arteriosclerosis.

Harold Koch Shawan ⊕ Detroit; Western Reserve University Medical Department, Cleveland, 1909; fellow of the American College of Surgeons; professor of clinical surgery at the Wayne University College of Medicine; specialist certified by the American Board of Surgery; affiliated with Grace Hospital, City of Detroit Receiving Hospital, Highland Park (Mich.) Hospital and the St. Francis Hospital in Hamtramck; died January 11, aged 65, of acute coronary thrombosis.

William Reynolds·Shetterly, Brooklyn; Medical College of Ohio, Cincinnati, 1890; member of the American Medical Association; consultant at Lutheran Hospital; formerly on the staffs of the Brooklyn and Brooklyn Eye and Ear hospitals; died in Long Island College Hospital January 7, aged 86, of cerebral thrombosis.

Eugene Wesley Shrader, Moberly, Mo.; Missouri Medical College, St. Louis, 1895; for many years president and secretary of the Randolph County Medical Society; served during World War I and as draft medical examiner during World War II; for two terms county coroner; died January 14, aged 75, of cardiorenal insufficiency and arteriosclerosis.

John Gabrile Siddens, Morgantown, Ky.; Barnes Medical College, St. Louis, 1902; served during World War I; died in the City Hospital, Bowling Green, Ky., January 9, aged 76, of pneumonia.

Lewis Franklin Siegler, Philadelphia; Jefferson Medical College of Philadelphia, 1886; formerly health officer of Lancaster, Pa.; died January 29, aged 82, of bronchopneumonia.

Maurice Silverman ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1924; certified by the National Board of Medical Examiners; served during World War II; died January 20, aged 48, of lymphosarcoma of the spleen.

Lieut. Comdr. Cecil C. Welch
(MC) U. S. Navy, 1904-1945

Maurice Theodore Sloane, Philadelphia; Medico-Chirurgical College of Philadelphia, 1914; member of the American Medical Association; medical adviser to the Veterans Administration; served during World War I; formerly on the staffs of Presbyterian and Woman's hospitals; died January 15, aged 57, of coronary thrombosis.

Benjamin Clinton Smith ⊕ Hillsboro, Texas; University of Texas School of Medicine, Galveston, 1909; served during World War I; in 1933 vice president of the State Medical Association of Texas; served as president of the Hill County Medical Society and the Twelfth District Medical Society; died January 11, aged 73, of coronary occlusion.

James Edward Smoot, Concord, N. C.; Baltimore Medical College, 1893; member of the American Medical Association; died in the Cabarrus County Hospital January 17, aged 81, of coronary thrombosis.

Charles Edward Spivey ⊕ Hamburg, Ark.; Baylor University College of Medicine, Dallas, 1910; superintendent of the Crossett (Ark.) Hospital from 1920 to 1944; died January 13, aged 70, of hypertensive heart disease.

William H. Stephens, Davenport, Iowa; Bennett Medical College, Chicago, 1883; died January 12, aged 90, of coronary thrombosis.

Patrick Alexander Sullivan, Chicago; Rush Medical College, Chicago, 1897; died in St. Elizabeth Hospital January 29, aged 82, of coronary heart disease.

Gilbert Julius Van der Smissen, New York; Columbia University College of Physicians and Surgeons, New York, 1895; member of the American Medical Association; served on the staff of Lenox Hill Hospital; staff physician to the personnel at the New York Zoological Park; died January 20, aged 75, of cerebral hemorrhage.

Albert August Watts ⊕ Gary, Ind.; Chicago College of Medicine and Surgery, 1915; formerly county coroner; served during World War I; on the staff of the Mercy and Methodist hospitals; died February 19, aged 61, of chronic myocarditis and virus pneumonia.

Elizabeth Marie Weaver, Claremont, Calif.; Cleveland College of Physicians and Surgeons, medical department of Ohio Wesleyan University, 1902; for many years practiced in Akron, Ohio, where she was on the staff of City Hospital; died in Pomona, January 12, aged 77, of cerebral hemorrhage.

Lieut. (jg) Parley D. Thompson
(MC) U. S. N., 1919-1945

Louise Whitman Farnam Wilson, Henfield, Sussex, England; Yale University School of Medicine, New Haven, 1920; certified by the National Board of Medical Examiners; formerly a medical missionary in China; died January 21, aged 57, of carcinoma.

KILLED IN ACTION

Cecil Charles Welch ⊕ Surgeon, Lieutenant Commander, U. S. Navy, White, S. D.; Northwestern University Medical School, Chicago, 1928; member of the Radiological Society of North America; accepted the commission in the medical corps of the U. S. Navy in July 1927; interned at the U. S. Naval Hospital in Chelsea, Mass.; served in the Manila Bay area at the time of its capitulation to the Japanese and was later reported as a prisoner of war by the prisoner of war information bureau, via Geneva; died while a prisoner of war of the Japanese, January 1945, aged 40, aboard a Japanese prison ship.

Parley Dale Thompson, Acting Assistant Surgeon, Lieutenant (jg), U. S. Navy, Sandy, Utah; Temple University School of Medicine, Philadelphia, 1943; interned at the Naval Hospital in Philadelphia, with supplementary training at St. Vincent's Hospital; in October 1944 was assigned to duty as medical officer on the new U. S. S. *Drexler* in Boston; early in 1945 sailed for action in the Pacific; was posthumously presented with the Navy Cross "for extraordinary heroism as a medical officer on board the U. S. S. *Drexler* when that vessel was sunk by Japanese suicide planes in the vicinity of Okinawa, Ruykyu Islands," May 28, 1945, aged 26.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 26, 1949.

Free Medical Treatment for Foreign Visitors

An extraordinary provision of the National Health Service extends free treatment to foreigners visiting this country. A leaflet given to visitors arriving at British ports reads: "The National Health Service will provide you with all medical, dental and nursing care. Everyone—including visitors to this country, whether of British nationality or not—can use all or any complete part of it. There are no charges except for a few special items. And no insurance qualifications are necessary." It is stated in the press that news of this British service has got around France and other countries. Free National Health Service, dentures, spectacles and even operations may be luring cross-Channel trippers to Britain. But the insanity of producing this last result seems to have dawned on our socialist rulers. The Secretary of the British Medical Association reports that news has reached him, indirectly and not officially, that the Ministry has changed its view on the treatment of visitors from overseas. It has now made a rule that the benefits of the National Health Service do not extend to overseas visitors, whether foreign nationals or citizens of the Commonwealth or Colonies, if those visitors come to the country for the specific purpose of using the service. If, on the other hand, they should fall ill whilst here on a visit, they are entitled to use the National Health Service. But the difficulty arises to determine whether the visitor came to the country for the purpose of obtaining medical treatment or not. The *British Medical Journal* raises a legal point. Either the Act does or does not entitle foreigners to use the National Health Service. If it does, then a Government Department cannot make rules denying them the service. If, on the other hand, the Act does not entitle foreigners to use the service, then the law is being broken by offering the service to any foreigner.

Bill to Protect Children Against Milk Infected with Tubercle Bacilli

A bill to insure greater freedom of children's milk from the danger of tuberculosis passed its second reading in the House of Commons. In moving this the Parliamentary Secretary to the Ministry of Food, Dr. Edith Summerskill, said that it would have the effect of reducing the incidence of tuberculosis, disablement and even death. A recent survey revealed that the number of deaths from milk infected by tubercle bacilli was 15,000 a year, and many more thousands were crippled. So far as the child population is concerned the percentage was ten times greater in the rural areas, where more milk was drunk than in London. The bill limited the sale of milk, in areas to be specified, to classes of milk which were specially designated. Restrictions would also apply to milk supplied under welfare and school milk schemes. The policy would be in the first place to apply orders to groups in large urban areas, and then to extend the scheme so far as practicable to rural areas. It might be five or ten years before provisions applied to the country as a whole. Great progress has been made in improving milk in this country, but we cannot be satisfied with the present position.

In the discussion Mr. Hastings, laryngologist, said that 50 per cent of the cases of tuberculous meningitis were due to the bovine variety of the tubercle bacillus and were presumably due to the taking of milk. Another member advanced the argument that unpasteurized milk, even though infected with tubercle bacilli, has the effect of building up a gradual resistance until in time immunity is established. The Minister replied: "That is an argument advanced fifty years ago. Would you give your children milk containing tubercle bacilli in order to immunize them?"

The Midwife as the Doctor's Partner

A Working Party appointed by the Minister of Health to inquire into the reasons for the shortage of midwives and problems of recruitment has presented its report. They describe the midwife as "the practitioner of normal midwifery" and urge that she should attend the mother and baby at least a month after delivery. The limited means of analgesia at her disposal place her at a disadvantage in the face of the growing public demand for relatively painless childbirth, and they ask for an investigation by a committee of a more effective method for her use. Complaints have been received from both health officers and midwives that in the maternity service under the National Health Service general practitioners are tending to take over the whole of antenatal care and relegating midwives to the status of maternity nurses. In some cases midwives do not see the patient until they go to deliver her. Further, pupils are getting no opportunity to see antenatal care. This is entirely contrary to the development of the maternity services intended. A general practitioner should accept his full responsibility for his patient but should not exclude his partner the midwife. Doctor and midwife are complementary to one another and should thus work under the National Health Service.

The Royal College of Surgeons as an Educational Center

The Royal College of Surgeons is playing a much more important part in postgraduate study, for which it has become an international center. At the Hunterian festival dinner the orator, Mr. Henry Souttar, said that in his younger days the college resembled a mausoleum, but now at any time 300 to 400 students could be found there. He expressed the belief that some day the physicians would join with the surgeons in creating a medical academic center for the British Commonwealth. The president of the college, Lord Webb-Johnson, said that since the war it had become clear that the need for further development in teaching is urgent. Lord Nuffield's gift for the foundation of a college of surgical science attached to the college provided residential quarters for students, teachers and research workers. Responding to the toast of the guests, Prof. Lilian Penson spoke of London as richer than any other city in the world for scholarship, research and maintenance of a high tradition in learning.

International Congress of Biochemistry

The first International Congress of Biochemistry will be held at Cambridge August 19 to 24 under the presidency of Prof. A. C. Chibnall. The work has been divided into the following sections: Animal Nutrition and General Metabolism (chairman, Sir Jack Drummond); Microbiologic Chemistry (Miss M. Stephenson); Enzymes and Tissue Metabolism (Prof. R. A. Peters); Proteins (K. Bailey, Ph.D.); Clinical Biochemistry (Prof. E. J. King); Structure and Synthesis of Biologically Important Substances (Prof. A. R. Todd); Cytochemistry (Prof. N. J. Davidson); Biological Pigments—Oxygen Carriers and Oxidizing Catalysts (Prof. D. Keilin); Hormones and Steroids (Prof. F. G. Young); Chemotherapy and Immunochemistry (Sir Charles Harrington); Plant Biochemistry (C. S. Hanes); Industrial Fermentations (J. H. Bunker).

Prof. E. C. Dodds is chairman of the executive committee. Further information may be obtained from the Honorary Organiser of the Congress, 56 Victoria St., London, S.W. 1.

Sir William Hale-White

Sir William Hale-White, who had a prominent position among nineteenth century physicians, particularly as a writer, has died at the age of 91. He was appointed assistant physician to Guy's Hospital in 1885 and remained on its active staff.

During World War I he was consulting physician to war hospitals. A distinguished clinician, teacher and consultant, he was the author of several leading textbooks. "Materia Medica, Pharmacy, Pharmacology and Therapeutics" first appeared in 1892, ran through twenty-six editions and completed its one hundred and thirtieth thousand in 1944. His other books include "A Textbook of General Therapeutics" (1889); a "Textbook of Pharmacology and Therapeutics" (1901), and "Common Affections of the Liver" (1908). In 1923 he published a translation of selected passages from Laennec's "Treatise on Mediate Auscultation." After his retirement from practice he devoted his leisure to the study of medical history and produced a charming book on "Great Doctors of the Nineteenth Century." As a Guy's man he had a great affection for Keats and had the poet's "Anatomical and Physiological Note Book," compiled while he was a student at Guy's Hospital in 1814-1816, reproduced photographically. The final result was a book on "Keats as a Doctor and Patient." He also wrote a notable article on "The Bicentenary of the Birth of Oliver Goldsmith."

ITALY

(From Our Regular Correspondent)

FLORENCE, Feb. 24, 1949.

Leishmaniasis in Italy

Reports on the subject of leishmaniasis in Italy were presented at a meeting on tropical medicine. Professor Pullè, University of Bologna, reported on the cutaneous form of the disease, emphasizing that several thousand cases of this type occur in nearly all the regions of Italy. It is necessary to inform Italian practitioners of the means of combating the disease successfully which have now been perfected. The disease is transmitted by the bite of the sandfly and more precisely by the bite of Phlebotomus papatassii major. The form with the greatest incidence, known also under the name "oriental sore," may be healed, in general, by Professor Flarer's method of treatment.

Professor Girolami of Cagliari gave a report on visceral leishmaniasis in Italy, which was first described by Dr. Cigliano of Forio d' Ischia in a study which remained unknown for many years. In 1880 Professor Cardarelli of the University of Naples studied the disease and described it under the name "infectious splenic pseudoleukemia in children"; in 1905 Pianese discovered the causative agent and observed that it is similar to that of the Indian kala-azar discovered by Leishman and Donovan in 1903-1904. While adults and children may be affected by Indian kala-azar, in Italy the disease is observed most frequently in children less than 5 years of age, commonly of male sex.

The infection is contracted most frequently in the country, in small rural centers and at the periphery of centers with large population. The disease affects mainly agricultural people and has its greatest incidence in the Southern regions and on the big islands. The major foci of infection are at the foot of the major volcanoes, the environs of Naples and Catania. The reasons for this particular distribution are not known. Dogs are the specific reservoir of the virus.

Fever, splenohepatomegaly and hematic changes are of primary importance in the clinical picture; intestinal, hemorrhagic, general and respiratory symptoms may be observed frequently. The fever curve is fairly irregular; the attacks of fever—in general—are of short duration and may recur within twenty-four hours.

The changes of the blood are characterized by the presence of constant oligochromemia, oligocythemia and leukopenia with relative lymphocytosis. In the bone marrow one may observe cellular pictures which vary according to the individual patient: hemocytoplastic or lymphocytotic or aplastic bone marrow.

Leishmaniasis may be associated with other diseases such as pulmonary tuberculosis and brucellosis. Diagnosis by clinical features may in addition be established by the demonstration of the specific parasite in the bone marrow or in the spleen, in the hepatic juice or in the circulating blood.

The Italian school, with Di Cristina, Caronia and Castellani, has made great contributions to the progress in treatment of visceral leishmaniasis. It is based on the specific chemotherapeutic action of antimony, which may be employed in the form of antimony potassium tartrate with highly satisfactory results.

Congress of Orthopedists and Traumatologists

The Italian Association of Orthopedists and Traumatologists held its twenty-third national congress in Bologna. Reports were presented on "Reparative Surgery of the Hand" and "Treatment of Static Changes of the Plantar Arch."

Professor Marcer of Parma, who reported on the first subject, pointed out the technical difficulty involved in reparative surgical treatment of the hand; the procedure often is difficult and disagreeable, and hence may be neglected frequently. Operative success often depends on many small but important technical details; the operation requires the most perfect asepsis, an "atraumatic" technic and constant functional reeducation. He described the methods of surgical repair of the cutaneous lesions and of the bone lesions of the hand besides those of the joints and recalled the various interventions for the cure of pseudarthrosis of the scaphoid to correct camptodactylia and for surgical treatment of habitual dislocation of the first carpometacarpal joint. He then described the reparative surgical treatment of tendon lesions of the hand, recalling the various methods of tendon transplants and grafts with the modern technic suggested by Bunnel and Iselin.

Professor Albanese, of Sampierdarena, reported on the treatment of static changes of the plantar arch, distinguishing between talipes cavus and flatfoot. The speaker established some definite rules of treatment which may be summarized as follows: (*a*) to observe the manifestations of incomplete physiologic evolution, but to refrain from intervention; (*b*) early intervention in an attempt to modify the skeletal conditions not only in the congenital forms but also in those "potential" ones of arrest or of deficient development. Based on these concepts the therapeutic directions have been modified during the last few years as follows: Confidence is always slight with regard to the curative efficiency of orthopedics by which an incomplete action is carried out on the form and orientation of the bones; physical exercises are looked on slightly less favorably; they are still valuable as a means of stimulating the course of some phases of the development and of supporting more energetic therapeutic procedures. Orthopedic and gradual corrective measures are gaining in favor, in analogy to those practiced in other congenital malformations. Among the methods of surgical treatment, dissection or plastic repair of the achilles tendon will still be looked on favorably by the majority of surgeons.

Transplants and grafts of tendons still enjoy much favor among German and Italian authors, but are looked on less favorably in America; they are not taken into consideration in France. Interventions on the skeleton received a noteworthy impulse from recent pathogenetic and anatomicopathologic progress. The majority of the workers favor intervention on the mediotarsal bones and joints, employing conservatory and modeling procedure.

The talipes cavus is a complex deformity consisting in hypertonicity and retraction of the elements supporting the plantar arch, in a want of equilibrium of the power of the various muscular groups and in changes of form and position of the skeletal elements which constitute the planking of the plantar arch.

With regard to surgical treatment there is nearly general consensus that it is necessary to influence the elements supporting the plantar arch; with regard to the mode of attack, the concept of intervention by exposure of the surgical field prevails. Among the various routes of access the median enjoys the greatest preference because of ample light; it is free of risk and allows for carrying out the intervention on any element of the planta. The want of muscular equilibrium can be corrected only by means of transplants.

BRAZIL

(From Our Regular Correspondent)

Rio de Janeiro, Feb. 29, 1949.

Pathologic Process of Murine Leprosy

A comprehensive description of the evolution of the pathologic process in the murine variety of leprosy has been made at the therapeutic laboratory of the Fundação Paulista contra a Lepra, in São Paulo, by Drs. W. A. Hadler and A. C. Mauri. Working with 265 rats of the McCollum and Wistar strains infected by peritoneal inoculation, they observed and described in detail the successive stages of the evolution of experimental murine leprosy. The peritoneal inoculation originates a generalized infection, with a progressive evolution without tendency to spontaneous regression. As a rule, the lesions begin by proliferation of the reticuloendothelial elements, followed by differentiation of leprous cells, these increasing in number and giving place to diffuse infiltrates which grow in size and then take a delimited form to constitute a leprous nodule. In the peritoneum the alterations have two distinct stages. The first occurs in the peritoneal cavity, where an afflux of blood elements is first observable, followed by reticuloendothelial elements, endothelial macrophages and reticular macrophages. The bacilli are encountered first in the neutrophils and later almost exclusively in the elements of the reticuloendothelial system. The second stage takes place in the peritoneum, where subserous leprous cells are manifest, giving origin to leprous nodules. By the eighth day nodules are visible microscopically, and around the hundred and twentieth day actual tumors are found, accompanied by necrosis and central autolysis. Twenty-four hours after the inoculation it is possible to notice, in the mediastinal and retroperitoneal lymph nodes, areas in which endothelial cells of the lymphatic sinus are mobilized and which contain bacilli in the cytoplasm. The leprous cells increase in number and invade the radial lymphatic sinuses, presenting an irregular form. From the fifth day on, the leprous infiltration takes a rounded form, creating nodular lesions with a great number of bacilli. Until about the fiftieth day the lesions show no alteration, but from then on they begin to increase in size, fusing one with another, with the number of bacilli greatly increased. By the one hundred and fiftieth day a central necrosis begins, followed by autolysis, and about the one hundred and eightieth day more than two thirds of the ganglial tissue is destroyed.

In the liver, an intumescence of the Kupffer cells with bacilli in the cytoplasm is apparent by the tenth day, followed by infiltration of lymphoid cells without bacilli around the interlobular areas and centrolobular veins. Between the twentieth and the twenty-fifth day some histiocytes containing bacilli are found in these infiltrations, which after that begin to form leprous nodules. After the eightieth to one hundredth day the nodules show necrosis and autolysis. In the spleen, two or three days after the inoculation it is already possible to find bacilli in the endothelium of the venous sinuses and the reticular cells of the red pulp. Around the thirtieth day leprous nodules are formed in the white and red pulp of the organ, with few bacilli, the lesions then becoming stationary. There are very slight lesions in the kidneys, where only in the advanced stage (about the one hundred and fiftieth day) a hyaline punctiform degeneration is observable in the parenchyma. The interstitial cells of the lungs and the reticular cells of the bone marrow present bacilli from the very day of the inoculation.

The authors are now beginning to use this method of study as a control test of the efficiency of some of the drugs used to treat human leprosy.

Decline of Diphtheria Mortality

Diphtheria has long been prevalent in Rio de Janeiro. Before the advent of antitoxin treatment the diphtheria mortality was always high, epidemics having been registered in several years. From 1871 to 1890, the average annual mortality rate from the disease was 16.1 per hundred thousand, with rates as high as 29.6, 31.2, 35.3 and 43.4, respectively in 1888, 1887, 1885 and 1883. After treatment with antitoxin was begun this high mortality level was lowered, and during this long period from 1891 to 1940 the annual death rate from diphtheria was almost constantly high, death rates of 5, 7, 9 and 10 per hundred thousand having been registered many times, with the general average of 6.2 per hundred thousand for the whole period of fifty years. Ten years ago, a program of improvement of case reporting and of active immunization was begun, the work having gained momentum in the last four years. During this period the mortality has consistently declined, as is shown by the annual death rates for 1941 and the following years: 10.7, 7.9, 5.9, 6.1, 3.5, 4.5, 4.1 and 4.0. The number of persons actively immunized is increasing, from a little more than 5,000 five years ago to almost 35,000 in 1948. During the present year the health department hopes to decrease the diphtheria mortality to about 2 deaths per hundred thousand. A great effort is being made to concentrate the immunization to children below 5 years of age, among whom about 30 per cent of the deaths from the disease occur.

Rutin as a Treatment of Pemphigus Foliaceus

Dr. Josefino Aleixo of the University of Belo Horizonte published a preliminary report on the use of rutin for the treatment of "wild fire" (pemphigus foliaceus). He was led to try this kind of treatment by the fact that wild fire is now prevalent in the poor farm laborers of the states of São Paulo and Minas Gerais who use little wheat as food, in contradistinction to Syrian immigrants working in towns and using a large amount of wheat in the form of a dish called "kibi." Dr. Aleixo never saw a case of wild fire in these Syrian workers. Starting from the fact that Griffith and Lindauer showed the good results of rutin in cases of capillary fragility, and from the work of J. Kirle, E. Mendes and A. Lindberg, who demonstrated capillary changes in pemphigus foliaceus as a consequence of Rossle's serous inflammation, Dr. Aleixo used rutin, a chromoglucoside extracted from buckwheat. He says that cases of wild fire treated with rutin have shown that the bullous eruption is prevented, and when present it disappears rapidly, a fact that he had never seen with any other treatment.

A Joint Health Committee of the Armed Services

A Joint Health Committee of the Armed Services was recently created, constituted by the three Surgeons General of the Army, the Navy and the Air Force, to establish a common doctrine of action and uniformity of methods and resources. The principal functions of the committee are the establishment of general norms of health for the selection of personnel to the armed forces, the adoption of standard measures of prevention of diseases and of medical and surgical treatment, the standardization of therapeutic resources, the adoption of a common nosologic nomenclature and a uniform system of records, the establishment of a system leading to the common use of all hospitals, clinics and centers of treatment and the organization of a common plan of control of the physical and mental efficiency of the armed services' personnel.

Correspondence

TREATMENT OF ACUTE RENAL INSUFFICIENCY

To the Editor:—Under Correspondence in THE JOURNAL, February 12, page 473, appeared a communication from Dr. Alfred P. Fishman. Dr. Fishman quoted from a paper presented by Daniel Marshall and myself before the Central Society for Clinical Research in Chicago, Oct. 31, 1948, in regard to our management of lower nephron nephrosis. Since our paper was at that time unpublished and since it did not deal at all with management but with the altered renal function in lower nephron nephrosis, Dr. Fishman could not quote correctly either our words or our ideas. (This paper has in the meantime appeared in the *Journal of Laboratory and Clinical Medicine,* 34: 31 [Jan.] 1949).

We have expressed our ideas on management in a paper which will appear soon in the *Archives of Internal Medicine.* In this report, we explicitly state that once the renal lesion of lower nephron nephrosis is well established, there is no known method for producing diuresis until some degree of healing occurs. For this reason, the aim of treatment should be not to get the damaged kidney to secrete against all odds but instead to keep the patient alive until the tubules recover enough to reverse the retention of excretion products. We have thus, contrary to Dr. Fishman's implications, definitely stressed the spontaneous resolution of the anuria.

Our management involves the maintenance of normal nutrition and the attempt at restoration to normal of the electrolyte composition of the extracellular fluids (and plasma). We have recommended 3 liters of saline plus lactate during the first 24 to 36 hours to rule out oliguria on the basis of dehydration and hyponatremia alone, for in such cases in which the kidneys have not been organically damaged such treatment has been sufficient to initiate a diuresis. With the persistence of the oliguria we administered 1 to 2 liters of saline with lactate daily in order to raise the serum chloride and sodium concentrations toward normal and to allow a slow accumulation of edema fluid. In our more recent cases we have recognized that the administration of even considerable quantities of 0.9 per cent salt solution will not adequately raise the serum sodium concentration and we have therefore utilized daily intravenous injections of 500 cc. of 3 per cent salt solution. This procedure is in agreement with that recently proposed by J. P. Peters (*Surgery* 24: 568, 1948). On such a regimen, whether because of the dilution effect of the edema fluid or because of the protein-sparing action of the raised serum sodium concentration, the blood urea concentrations have tended to reach a plateau and the patients have felt well. At no time have we advocated large volumes of fluid "to open the kidneys." This unphysiologic phrase, imputed to us by Dr. Fishman, is not our invention.

We find no objection to Dr. Fishman's regimen if it can accomplish what he claims for it without production of edema and with normal electrolyte composition of the serum. However, it has been our experience that edema develops in these patients under any circumstances if food and drink are allowed and that this expanded extracellular fluid has a low sodium and chloride concentration, which can be corrected only by hypertonic salt solution administered of necessity intravenously. It is an illusion to believe that edema from oral or subcutaneous fluid and salt administration is more innocuous than that from intravenous injection. It is not intravenous fluid administration which causes the strain on the heart in these cases but the uremia itself and its accompanying rise in blood pressure. In patients who die in uremia from whatever cause, myocardial failure is usually an important terminal factor whether much or little fluids have been given.

Finally, we agree with Dr. Fishman that many of these patients might recover with any of several treatments, and that the mortality of 80 to 90 per cent reported in the cases involving battle injuries is probably due to complicating factors such as excessive protein breakdown. But we are forced to believe that a management such as ours involving only one death in 12 cases (none in the last 10) has some merit.

WILLIAM S. HOFFMAN, M.D.
Director of Biochemistry,
Hektoen Institute for Medical Research
of the Cook County Hospital, Chicago

PENICILLIN IN MALARIA

To the Editor:—In his letter concerning penicillin in the treatment of malaria published in THE JOURNAL, March 12, page 734, Dr. Deshmukh comments that had I read a reprint of his article (Deshmukh, P. L.: Treatment of Relapsing Malaria with Specific Antimalarial Drugs in Combination with Penicillin, *Indian M. Gaz.* 82: 511 [Sept.] 1947). I should not, perhaps, have rushed to your columns with my letter published in THE JOURNAL, Aug. 28, 1948, page 1632. In my letter I stated that there is evidence to prove that penicillin does not affect malaria. After reading his article again, a reprint of which Dr. Deshmukh kindly sent me, I still believe that his conclusions that penicillin acts on the preerythrocytic stage of malaria are unfounded.

Dr. Deshmukh cites 2 cases in support of his thesis. One patient, a woman 34 years old, seen during an acute attack of malaria with a history of a previous attack a year before, was treated with quinine, quinacrine hydrochloride and penicillin, and during the following four months was free of relapses. The other, a 24 year old man who had had "repeated attacks of fever with rigor for the last six months off and on," was similarly treated and had no recurrence during the subsequent three months. He states that 4 other patients who were similarly treated had been followed six to eight weeks without relapse.

The evidence presented is valueless to prove that penicillin was in any way concerned with the absence of relapse during the periods of observation. The first patient had previously experienced a year without an attack of malaria. The attack observed by Dr. Deshmukh may have been a relapse or a new infection. She might have gone another year or longer without further attacks of malaria if no penicillin had been given. The second patient, likewise, might well have experienced more than three months without a relapse without penicillin treatment. As for the 4 other cases cited, the follow-up period of six to eight weeks was far too short for them to be considered. Dr. Deshmukh has no controls in his series. One must have observations on a number of cases and controls, similar in all respects including age, type and duration of infection, and pattern of relapses, differing only in regard to treatment with or without penicillin and followed for a period of many months before any tentative conclusions may be drawn.

During the recent war years a large number of patients with relapsing vivax malaria from the Southwest Pacific area were given various forms of antimalarial therapy and held under observation for periods of four months to a year. Treatment with quinine, quinacrine, chloroquine, S.N. 6911, or other preparations was followed by relapses within four months in about two thirds of the cases, regardless of preparations used, although chloroquine delayed the relapses longer than the others. The remaining third of the patients failed to relapse during the observation period, regardless of type of therapy. In other words, in any group of cases of vivax malaria, a certain proportion will be experiencing their last relapse, and if the same group is followed for three years, if reinfections are not occurring, malaria will have terminated in nearly all. The supply of preerythrocytic forms will be exhausted.

A number of these patients were given courses of penicillin therapy for conditions other than malaria, during or between relapses of malaria. This group continued to relapse at about the expected rate, indicating that penicillin did not affect the preerythrocytic forms of the parasite.

George M. Saunders, M.D.
Assistant Professor of Preventive
Medicine, Washington University,
St. Louis

INTERNSHIPS

To the Editor:—On December 14, 1948, I directed an inquiry to the administrators of the forty-one hospitals in New Jersey offering approved internships. On December 22 I had received twenty-eight replies. Authorities familiar with questionnaires assure me that this represents considerable interest and, perhaps, some emotional drive on the part of the recipients of the questionnaire. There was one direct question: "How many interns do you have under contract for 1949-1950?" The replies indicated that twenty-eight hospitals had 113 interns under contract and 303 internships were approved. On the basis of the replies received it would appear that the hospitals in New Jersey are getting 37⅔ per cent of the interns for which they are approved and for which they obviously have need.

The remarks which were volunteered by the officials who responded to the questionnaire were:

> We have followed the present method of appointment exactly as outlined. After two years' experience I do not believe it is an efficient method of obtaining interns as far as this hospital is concerned.
>
> We need ten. You are doing just what I threatened to do. We accepted fourteen applicants and got one. The situation is critical.
>
> Normal quota is ten at $100 per month plus maintenance. Very difficult to obtain interns. We advertise in The Journal of the American Medical Association.
>
> I have your letter of December 14 concerning the present system of distribution of interns. Up to this year we have always been successful in securing our quota of interns at this hospital.
>
> This year the situation is what I call disastrous. For the July 1, 1949 class we have one intern signed up; we are short seven interns.
>
> Whether this can be blamed on the method of distribution, or the shortage of medical school graduates I do not know, but the situation we, as a 250 bed hospital, find ourselves in for next year is certainly not encouraging. I understand that practically all hospitals in the state are faced with this acute shortage of interns.
>
> At the present time we have twenty-three interns for twenty-four appointments. Beginning July 1, 1949 we will have seventeen interns for twenty-four appointments.
>
> I am very much opposed to the present procedure of the appointment of interns. The deans of the medical colleges and the American Hospital Association have agreed that intern appointments cannot be made before November 15 of each year and all hospitals make their appointments at the same time. They give the prospective intern seventy-two hours to make up his mind as to which intern appointment he wishes to accept. I feel we should allow the prospective intern the privilege of seeking his internship rather than to a have a number of appointments offered to him at one time. He is swamped with telegrams and even telephone messages at midnight beginning November 15.
>
> I consider that the present system is most unsatisfactory for nonteaching hospitals. No system at all would be better than this.

Obviously the system of procurement and assignment of interns is not satisfactory to the rank and file. I have introduced several resolutions into the House of Delegates in years gone by in an effort to inquire into this defect.

Hilton S. Read, M.D.
The Ventnor Clinic, Atlantic City, N. J.

Note.—The letter was referred to the office of the Council on Medical Education and Hospitals, which replies:

To the Editor:—The data furnished by Dr. Read for twenty-eight hospitals in New Jersey are in essential agreement with the statistics presented in the Internship and Residency Number of The Journal, May 1, 1948, which indicated that the majority of small nonteaching hospitals are having difficulty in filling their internships.

The Uniform Intern Placement Plan was adopted to eliminate the practice of offering appointments to medical students early in their undergraduate course, in some instances as early as the sophomore year. It was the general feeling of medical educators and hospital administrators that if this practice were allowed to continue, the entire system of intern appointments would become chaotic to the point of prejudicing the interests of interns and hospitals alike. The plan does not and cannot assure the participating hospitals a full quota of interns. It is recognized that violations of its regulations exist which tend to undermine general acceptance of the plan. The majority of hospitals, however, have complied with its requirements and when successful in attracting the required number of interns have found the system satisfactory.

Interns have always been attracted to those hospitals which in the opinion of recent graduates provide the best training. It is on the basis of offering a superior program that hospitals must expect to compete for interns.

The basic problem involved is one of supply of interns rather than of distribution. Given the present number of graduates, it is impossible to meet the house staff requirements of all hospitals requesting interns. An increase in the number of hospitals offering two year, rather than one year, internships would of course result in a decreased annual demand, alleviating the problem to some extent. Until this trend has developed to a considerably greater degree, however, it will be necessary for many hospitals to continue to furnish a high level of medical care without relying on interns.

In accordance with the recommendations of the Reference Committee on Medical Education, as adopted by the House of Delegates at the annual meeting June 25, the Council is presently engaged in reviewing all approved internships. It is anticipated that a number of hospitals currently approved will not be able to meet present requirements and approval in these instances will necessarily be discontinued.

Council on Medical Education and Hospitals

LICENSURE OF FOREIGN MEDICAL GRADUATES

(The Committee on Foreign Medical Credentials, an unofficial body sponsored by the Council on Medical Education and Hospitals of the American Medical Association and composed of invited individuals from organizations interested in the problem of foreign physicians, is issuing for the information of the public and the governmental agencies concerned with the licensure of physicians a summary of the problems involved in the licensing of foreign medical graduates and its recommendations for their solution. The membership of the Committee includes individuals from the following organizations:

Advisory Board for Medical Specialties
Association of American Medical Colleges
Council on Medical Education and Hospitals
Department of State (observer)
Federation of State Medical Boards of the United States
Illinois Department of Registration and Education
Institute of Inter-American Affairs
Institute of International Education
W. K. Kellogg Foundation
Minnesota State Board of Medical Examiners
National Board of Medical Examiners
New York State Board of Medical Examiners
New York State Department of Education
Pan American Sanitary Bureau
Rockefeller Foundation
United States Office of Education
Wisconsin State Board of Medical Examiners
World Health Organization
World Medical Association)

The licensure of physicians who have received their medical degrees from foreign institutions seems certain to present a growing problem for the licensing bodies of the forty-eight states, the District of Columbia and the territories and outlying possessions of the United States and for the National Board of Medical Examiners. The unsettled economic and political conditions in many parts of the world have already stimulated many physicians to migrate to the United States, and it may be predicted that the number seeking to migrate will increase in the years ahead. In addition, each year a number of Americans enter foreign medical schools with the expectation of returning to the United States to practice. Some of these students study abroad because they are unable to gain admission to an American medical college, while others do so from choice.

The problem of the physician who has graduated from a foreign medical school promises to confront the public, various legislative bodies and the licensing boards with increasing frequency during the next several years. The problem has important and far reaching implications for the health and safety of the people of the United States. It is important, therefore, that the public be provided with information to serve as the basis for intelligent opinion and that legislative and licensing bodies be prepared to adopt an enlightened policy in deciding questions pertaining to the licensure of foreign-trained physicians

Two basic principles are involved in the licensure of physicians whether they be graduates of domestic or foreign schools. The first principle and one that has long been recognized by all states and nations is the requirement that a physician satisfy a licensing body representing the public as to his competency before he is permitted to practice. This principle is essential for the protection of the public. Without this requirement, the people of a community cannot distinguish those physicians who are competent to provide medical care from those who are not.

Similar requirements for licensure or equivalent certification by an appropriate public agency have been established for the protection of the people in many professional and nonprofessional occupations. Such occupations include architects, dentists, engineers, veterinarians, lawyers, nurses, electricians and plumbers. The principle of licensure by legally created agencies of the state has become so well established in our society that its value and validity cannot be questioned.

The second principle involved is that the training a man has undergone in preparing to enter a profession is a paramount factor in determining the quality of his professional practice. It must be admitted that exceptional men may rise above the limits of their training, but this achievement is frequently accomplished only after years of experience in practice and additional training. To allow an inadequately trained physician to attempt to perfect himself through the mistakes of years of practice is to permit unwarranted and unnecessary abuse of patients who entrust their health and lives to him.

An important corollary of this second principle is that the best assurance of the quality of the training that a physician has received is an intimate knowledge of the faculty, facilities, curriculum and standards of the medical school from which he has graduated. The art and science of conducting examinations has not yet advanced to the point where full reliance can be placed on the results of the type of examinations to which licensing boards are limited by considerations of practicality. Only when the results of such examinations are coupled with an evaluation of the quality of training that a physician has received can a licensing board be reasonably confident that a physician is adequately prepared to assume the responsibilities that are an inevitable part of his practice.

In licensing graduates of American and Canadian schools, the various state licensing boards have for many years had the benefit of the findings of periodic thorough surveys of these schools carried out by the two accrediting bodies, the Council on Medical Education and Hospitals of the American Medical Association and the Association of American Medical Colleges. Some of the state licensing boards supplement this information with investigations of their own, although it is beyond the resources of most boards to inspect periodically all the eighty medical schools in the United States and Canada.

It should be pointed out that the present high standard of medical practice in the United States has been the direct result of the recognition by the licensing boards that evaluation of the school from which a physician graduates is equally important as evaluation of the physician himself. Before this principle was generally recognized, the country was overrun with physicians who, armed with a degree from a low grade school or outright diploma mill, succeeded in one way or another in passing the examinations for licensure. The needless suffering and injury perpetrated by the incompetent and at times fraudulent practices of many of these inadequately trained men constitute a dark chapter in the history of medicine.

While it has been possible for the two accrediting agencies referred to above to maintain current appraisals of the quality of education offered by American and Canadian medical schools, it has been beyond their resources to attempt to maintain a similar inventory of the three hundred or more medical schools in other parts of the world. For many years this was not important because the numbers of physicians migrating to the United States was small and most foreign-trained physicians came from medical schools that were well known in America.

Between 1930 and 1939 two developments occurred that entirely changed the situation. Unsettled and unfavorable conditions abroad prompted large numbers of physicians to migrate to this country. At the same time, internal developments in many countries led to a rapid deterioration in the quality of medical education. This change, which was readily apparent to American physicians traveling abroad in the years immediately prior to the war, was greatly accelerated when these countries became involved in World War II. The pressures of the war reduced the quality of medical education in all countries, including the United States, but in many countries the effect was catastrophic. Faculties were decimated, buildings, libraries and equipment were destroyed or badly damaged, all contact with scientific developments in other countries was interrupted and standards were lowered in an effort to turn out large numbers of physicians to serve the armies of the warring nations. By the end of the war, medical education in other countries, with few exceptions, had degenerated to a degree that was shocking to those who had known these countries in the period up to 1930. While medical education in the United States recovered quickly from the war and is now at the highest point in its development, unsettled political and economic conditions in many foreign countries have prevented any similar recovery. Even more disturbing is the fact that some foreign countries appear to be committed to educational policies that are so unsound and so inferior that there is serious doubt that satisfactory standards of medical education will be reestablished at any time in the foreseeable future.

It is against this background that the problem of the foreign-trained physicians must be studied. Their complete exclusion from the United States cannot be reconciled with the traditional role of this country as the land of opportunity. The fact that few foreign countries will admit the graduates of American medical schools to practice should not be accepted as a valid reason for pursuing a reciprocal policy. It is well, however, for the people to know that the United States is the most liberal of all countries in licensing physicians who have not graduated from their own schools.

While a policy of complete exclusion cannot be defended, it is clear that until more information can be obtained about the present quality of medical schools abroad, the licensing boards would fail in their responsibility to the public if they did not use the greatest care and discretion in admitting foreign-trained physicians to their examinations.

Detailed current knowledge of foreign medical schools is indispensable for the guidance of state licensing boards in determining which foreign physicians have had sound training. It is essential that the various agencies concerned with this problem unite their resources and devise a satisfactory method for securing this information at the earliest possible date. It will not be an easy task and it is improbable that well documented evaluations can be made of all foreign schools in the same manner as is done for American and Canadian schools. The geographic and physical aspects of the problem alone present great difficulties. International relations will undoubtedly also limit the extent to which such a study can be carried out. One of the greatest difficulties will be to appraise accurately the great changes and fluctuations through which many schools have passed and are continuing to pass.

From such a study, however, it should be possible to derive a list of foreign medical schools which have maintained during specific periods, or are now maintaining, educational programs sufficiently comparable to the training offered by the medical schools of this country to warrant the admission of their graduates to the examinations of the licensing boards of the forty-eight states, the District of Columbia and the territories and outlying possessions of the United States as well as the examinations of the National Board of Medical Examiners.

As an added safeguard it would seem entirely reasonable that, whenever a candidate cannot present evidence to a state licensing board that he is sufficiently familiar with recent scientific advances in medicine, with the practices and customs of American medicine and with the English language, he be required to take additional training in this country before being permitted to appear for examination. There is every reason to believe that the various licensing boards can develop regulations covering these points that will be fair to the foreign graduate and adequate to protect the public.

The American people are today well served by the licensing boards which they have duly constituted by law to protect them from incompetent practitioners of the healing arts. It is to be hoped that the people will continue to have confidence that these licensing bodies are acting for their best interests according to well established principles.

The licensing bodies and the governments to which they are responsible have a heavy obligation to continue their efforts to maintain high standards of medical practice. They must also recognize that the spirit and tradition of America places on them an obligation not to deny the opportunity to practice his profession to any citizen or prospective citizen who can demonstrate satisfactory qualifications as to his professional competence and character.

If the problem of the foreign medical graduate is approached in this spirit, the Committee on Foreign Medical Credentials is confident that it will be solved without lowering the standards of American medicine and in a manner consistent with our national ideals of justice and humanitarianism.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Various Centers. June 20-22, Sept. 12-14. *Part II.* April 25-26. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY, INC. *Written.* Various Centers. July 15. *Oral.* Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* Philadelphia, June 1-3. *Written.* Oct. 17. Final date for filing application is May 1. Asst. Sec.-Treas. Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street. New Haven. Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, INC.: *Oral.* Chicago, May 8-14. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral.* New York, June 11-15; St. Louis, Oct. 15-19; Boston, December. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY. *Part I,* New York City, April 22-23; Atlanta, Ga., April 29-30; Indianapolis, May 6-7 and Denver, May 13-14. *Part II.* New York City, Jan. 1950. Final date for filing application for Part II is Aug. 15. Address: Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14, Calif.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, May 11-14; Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PEDIATRICS: *Oral.* Baltimore, May 7-9. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Rd., Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE. Philadelphia, June 4-5. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

AMERICAN BOARD OF PLASTIC SURGERY: *Examinations are given in* June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH: Washington, D. C., May 14-16. Sec.-Treas., Dr. Ernest L. Stebbins, 615 North Wolfe St., Baltimore.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, INC. December, New York City. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY. Atlantic City, June 2-4. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various Centers, October 26. *Final date for filing application is July 1.* Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: Feb. 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

ARKANSAS: * Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 9-10. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Examination.* San Francisco, June 20-23. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

DELAWARE: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

DISTRICT OF COLUMBIA: * *Written,* Washington, May 9-10. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., Washington.

FLORIDA: * *Examination,* Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

GEORGIA: *Examination.* June 8-9, Atlanta and Augusta. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

GUAM: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam. ℅ F.P.O., San Francisco, Calif.

HAWAII: * *Examination.* Honolulu, July 11-14. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

IDAHO: Boise, July 11-13. Sec., Miss Estella S. Mulliner, Bureau of Occupational Licenses, 355 State House, Boise.

INDIANA: *Examination.* Indianapolis, June 21-23. Sec. Board of Medical Registration and Examination. Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

IOWA: * *Examination.* Iowa City, June 13-15. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

KANSAS: Kansas City, June 1-2. Sec., J. F. Hassig, 905 North 7th St., Kansas City, Kans.

KENTUCKY: *Examination.* Louisville, June 15-17. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville 2.

MARYLAND: *Examination.* Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 14-15. Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

MINNESOTA: * Minneapolis, April 19-21. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSISSIPPI: Jackson, June 21-22. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

MISSOURI: *Examination.* St. Louis, May 30-31 and June 8-10. Exec. Sec., Mr. John A. Hailey, Box 4, Jefferson City.

NEBRASKA:* *Examination.* Omaha, June 6-8. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

NEVADA: Carson City, May 2. Sec., Dr. G. H. Ross, 112 N. Curry Street, Carson City.

NEW JERSEY: *Examination.* Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

NEW YORK: Albany, Buffalo, New York and Syracue, June 28-July 1, Sec., Dr. Jacob L. Lochner, 23 South Pearl St., Albany.

NORTH CAROLINA: *Endorsement.* Pinehurst, May 9. *Examination.* Raleigh, June 23-25. Sec., Dr. Ivan Procter, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: * *Written,* Grand Forks, July 5-7. *Reciprocity,* Grand Forks, July 8. Sec., Dr. C. J. Glaspel, Grafton.

OKLAHOMA: * Oklahoma City, June 8-9. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: * *Endorsement.* Portland, April 29-30. *Examination.* Portland, July. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

PENNSYLVANIA: *Examination.* Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.

PUERTO RICO: San Juan, Sept. 6-10. Sec., Dr. Luis Cueto Coll, Box 3717, Santurce.

RHODE ISLAND:* *Examination.* Providence, July 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: *Examination.* Columbia, June 27-29. *Endorsement.* Columbia, May 2, June 27-28, Aug. 1, Sept. 5 and Oct. 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * *Examination.* Pierre, July 19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

TEXAS: *Examination.* Austin, June 16-18. Sec., Dr. M. H. Crabb. 209 Medical Arts Bldg., Fort Worth 2.

UTAH: *Examination.* Salt Lake City, July. Sec., Dept of Registration. Miss Rena B. Loomis. 324 State Capitol Bldg., Salt Lake City.

VIRGINIA: *Examination.* Richmond, June 17-18. *Reciprocity.* Richmond. June 16. Dr. K. D. Graves, 631 First St., S.W., Roanoke.

WASHINGTON: * Seattle, July. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

WISCONSIN: * *Examination.* Milwaukee, June 28-30. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Cheyenne, June 20. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

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* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARKANSAS: *Examination.* Little Rock, May 3. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.

COLORADO: *Examination.* Denver, June 1-2. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

CONNECTICUT: New Haven, June 11. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., New Haven 10.

DISTRICT OF COLUMBIA: *Examination.* Washington, April 18-19 Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., Washington.

FLORIDA: *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

MICHIGAN: *Examination.* Detroit and Ann Arbor, May 13-14. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

MINNESOTA: *Examination.* June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

OREGON: Portland, June 18, Sept. 3 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

SOUTH DAKOTA: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St,. Yankton.

TENNESSEE: Memphis, July 8-9. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

WISCONSIN: Milwaukee, June 4. Sec., Prof. W. H. Barber, Ripon College. Ripon.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Smallpox: Right of School Board to Exclude Unvaccinated Child.—This was an action for an injunction to restrain the Barren County Board of Health and the Glasgow City Board of Education from enforcing a resolution each had passed requiring all school children to be vaccinated for smallpox or else be excluded from the city schools. From a judgment denying the injunction the plaintiffs appealed to the Court of Appeals of Kentucky.

The plaintiffs first insisted that there was not a case of smallpox in Barren or the surrounding county and that there had not been one for years and years, that there was no reasonable basis for the apprehension of an outbreak of the disease in the county and that therefore vaccination was unnecessary. The answer to this argument, said the Court of Appeals, appears in a prior Kentucky case (*Board of Trustees, etc. v. McMurtry,* 169 Ky. 457) where it was written that the health authorities are not required to wait until an epidemic exists before acting, but it is their duty to adopt timely measures to prevent one. While they may not harass the public by unreasonable or arbitrary regulations, such matters are left to their sound discretion rather than to the whims of laymen. It is too late, said the court, to start vaccinating to prevent the closing of schools after a case of smallpox appears.

The plaintiffs next argued that the school board was without authority to enforce the regulations of the health board requiring vaccinations. The State Board of Health adopted Rule 64 which reads: "No person shall become a member of any public or private school within the jurisdiction of this board as a teacher or scholar without furnishing a certificate from some reputable physician that he or she has become successfully vaccinated within seven years, nor shall such person be permitted to remain a member of such public or private school as a teacher or scholar without being vaccinated at least every seven years." The plaintiffs insist that the legislature has made no provision for the vaccination of school children, that Rule 64 was made by the State Board of Health under its general authority and that the school board was without power to enforce it. They are wrong, said the Court of Appeals. It is provided in the Kentucky statutes that all adults shall procure their own vaccination. Another section provides that all parents, guardians and other persons having the care, custody or control of any minor shall have the minor vaccinated for smallpox within twelve months after birth or after the minor comes under their care, custody and control. Still another section provides that all pupils admitted to the common schools shall comply with the lawful regulations for the government of the schools. Reading these sections together, said the Court of Appeals, we are convinced that the school board had the right to promulgate and enforce its own rules requiring compulsory vaccination of the children or it could enforce, in its own right, such a rule promulgated by either the county or state board of health.

The plaintiffs next contended that compulsory vaccination interferes with the constitutional rights of the children. Many cases, said the Court of Appeals, have held that the state has the authority to refuse children admission to the public schools until they are vaccinated. One of the plaintiffs, however, who was a chiropractor, also argued that his religious and conscientious belief prevented him from subjecting his children to vaccination by injecting foreign substances into the veins and that, consequently, to enforce the resolution of the school board compelling him to have his children vaccinated would interfere with his religious freedom. Religious freedom, said the court, embraces two conceptions, freedom to believe and freedom to act. The first is absolute, but in the nature of things the second cannot be. The constitutional guaranty of religious freedom, concluded the court, does not permit the practice of religious rights dangerous or detrimental to the lives, safety or health of the participants or the public. There may be no interference with the plaintiff's religious belief against vaccination, but he may not endanger the health of the community by refusing to have his daughter vaccinated.

Finally the plaintiffs contended that the two girls involved were not physically fit to undergo vaccination and that it would be detrimental to their health. The medical testimony in the record does not substantiate this claim, said the Court of Appeals. The preponderance of the medical testimony is to the effect that any child physically able to attend school can be vaccinated safely and without injury.

Accordingly the judgment of the trial court denying the requested injunction was sustained. *Mosier v. Barren County Board of Health; Stuart v. Barren County Board of Health, 215 S. W. (2d) 967 (Ky., 1948).*

Medical Motion Pictures

NEW MOTION PICTURE ADDED TO THE A. M. A. LIBRARY

Modern Surgery. 16 mm., black and white, sound, 700 feet (1 reel), showing time fifteen minutes. Produced in 1948 by The March of Time and released to Commercial Theaters under the title "The Case of Mrs. Conrad." Procurable on loan (Service Charge $2) from the Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10.

This film depicts the story of a surgical operation from the moment the family doctor suggests hospitalization until the patient fully recovers and is discharged. Some of the newer aspects of medical procedure portrayed in the film are hospital plan benefits, preoperative rest, the work of the various medical personnel who aid in the physical examination, recording of the medical history, laboratory tests, electrocardiograms and roentgen examinations. The role of the anesthetist before, during and after the operative procedure is well illustrated. The final scenes show early ambulation and the patient discharged to her home.

Physicians called on to address lay audiences such as service organizations, parent-teachers' associations and other such groups may find this film a useful adjunct in their lectures.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

36:801-986 (Dec.) 1948

*Report of Committee for Evaluation of Anticoagulants in Treatment of Coronary Thrombosis with Myocardial Infarction: Progress Report on Statistical Analysis of First 800 Cases Studied by Committee. I. S. Wright, C. D. Marple and Dorothy F. Beck.—p. 801.

*Some Effects of Quinidine Sulfate on Heart and Circulation in Man. M. I. Ferrer, Réjane M. Harvey, L. Werkö and others.—816.

II. Correlation of Electrocardiographic and Pathologic Findings in Large Anterolateral Infarcts. G. B. Myers, H. A. Klein and T. Hiratzka. —p. 838.

Experimental Study of Acute Pulmonary Arterial Obstruction, with Special Reference to Precordial Electrocardiogram. J. Flasher, H. E. Essex and Arlie R. Barnes.—p. 882.

Oxygen Content of Coronary Venous Blood as Affected by Anoxia and Cytochrome C. J. E. Eckenhoff and J. H. Hafkenschiel.—p. 893.

Portable Electrical Manometer Suitable for Continuous Indication of Peripheral Venous Presures. A. A. Pollack and E. H. Wood.—p. 899.

Can Longitudinal Anatomical Axis of Ventricles be Estimated from the Electrocardiogram? A. Hyman, R. B. Failey and R. Ashman.—p. 906.

Evaluation of Precordial Leads of Electrocardiogram in Obesity. H. L. Jaffe, E. Corday and A. M. Master.—p. 911.

Electrocardiographic Changes During Anthiomaline Treatment of Schistosomiasis. R. M. Suárez, S. Santiago-Stevenson and F. Hernández-Morales.—p. 923.

Anticoagulants in Coronary Thrombosis.—Wright and his associates summarize the results obtained by a preliminary statistical analysis of the first 800 cases studied by the Committee for the Evaluation of Anticoagulants in the Treatment of Coronary Thrombosis with Myocardial Infarction: The incidence of deaths and of both thromboembolic and hemorrhage complications has been compared in a "control" series of patients treated by conventional methods alone and in a series of "treated" patients who received anticoagulants (dicumarol,® heparin or both) in addition to conventional therapy. It was found that patients treated with anticoagulant therapy in addition to the conventional forms of therapy experience a death rate and incidence of thromboembolic complications during the first six week period following an attack which are markedly lower than those experienced by patients treated solely by conventional methods. Anticoagulant therapy should be used in all cases of coronary thrombosis with myocardial infarction unless a definite contraindication exists. In the absence of other hemorrhagic states, the hazards from hemorrhage due to anticoagulants are not sufficient to contraindicate their use in the treatment of coronary occlusion providing there are facilities for adequate laboratory and clinical control.

Quinidine Sulfate and Circulation.—Ferrer and his associates discuss the effect of quinidine sulfate on the circulation in subjects with an essentially normal cardiovascular status and in patients with heart disease. Quinidine sulfate, 0.8 Gm. by mouth, was given in a single dose on the basis that this amount represents the maximum effective single oral dose of this drug. An extensive investigation of the circulatory hemodynamics was carried out in 20 patients, by means of the technic involving catheterization of the right side of the heart. Clinical investigation of the blood pressure alone was undertaken in 21 subjects. A fall in arterial blood pressure was found in 12 of the 18 normal subjects, an incidence of 66.7 per cent. The results obtained in 5 of these 12 patients indicate that the fall in arterial blood pressure was unaccompanied by any change in cardiac output or right ventricular pressure. Eighteen of the 23 patients with cardiovascular disease showed a fall in arterial blood pressure, an incidence of 78.3 per cent. It was apparent, however, that in these cardiac patients the subsequent readjustments in the circulation were dependent on the physiologic status of the patient. In patients with normal cardiac output, no change in this determination was measurable. Patients with low cardiac outputs and elevated right ventricular systolic pressures responded with a shift toward more normal values. It is suggested that the fall in arterial blood pressure following use of quinidine is due in large measure to peripheral vasodilatation. Some evidence for an effect on the myocardium is also presented.

American Journal of Clinical Pathology, Baltimore

18:835-920 (Nov.) 1948

Vitamin K Tolerance Test. P. N. Unger, M. Weiner and S. Shapiro. —p. 835.

Electron Microscopic Studies of Globular Proteins in Cerebrospinal Fluid. C. A. Hellwig, R. L. Drake, H. W. Voth and J. E. Bleicher.—p. 852.

Efficiency of Blood Substitution. H. Wallerstein and S. S. Brodie. —p. 857.

Advances in Histopathologic Technic. R. D. Lillie.—p. 867.

Constant Oligospermia and Periodic Oligospermia. B. Zondek, Y. M. Bromberg and Z. Polishuk.—p. 874.

Increased Blood Platelet Clumping in Thromboembolic Disease. M. Morrison, I. H. Richter and L. Loewe.—p. 879.

American Journal of Medicine, New York

5:783-918 (Dec.) 1948

Hemodynamic Response of Man to Nor-Epinephrine and Epinephrine and Its Relation to Problem of Hypertension. M. Goldenberg, K. L. Pines, Eleanor de F. Baldwin and others.—p. 792.

Effect of Tetraethylammonium in Arterial Hypertension. A. R. Frisk, S. Hammarström, H. Lagerlöf and others.—p. 807.

*Effect of Low Sodium Diet and Rice Diet on Arterial Blood Pressure. B. Rosenberg, A. E. Rosenthal and M. B. Rosenbluth.—p. 815.

Electrocardiographic Manifestations of Potassium Intoxication. H. J. Stewart, E. M. Shepard and E. L. Horger.—p. 821.

Relation of Abnormalities in Concentration of Serum Potassium to Electrocardiographic Disturbances. R. Tarail.—p. 828.

Influence of Serum Potassium and Other Electrolytes on Electrocardiogram in Diabetic Acidosis. C. S. Nadler, S. Bellet and Mary Lanning. —p. 838.

*Sponge Biopsy in Cancer Diagnosis. S. A. Gladstone.—p. 849.

Use of Intermittent Positive Pressure Breathing Combined with Nebulization in Pulmonary Disease. H. L. Motley, L. P. Lang and B. Gordon.—p. 853.

Low Sodium or Rice Diet in Hypertension.—Rosenberg and his associates treated 7 hypertensive patients with a low sodium diet that was adequate in protein; 4 received the rice diet in addition to this; 1 had the rice diet alone, and in 1 patient observations were discontinued because he did not adhere to the diet. Four of 7 on the low sodium diet experienced a statistically significant fall in blood pressure; in 3 there was no change. Of 5 patients on the rice diet 3 showed statistically significant falls in both systolic and diastolic pressures, but only 1 to a normal value. The effect of the rice diet was only slightly greater than that of the low sodium diet. Although there was a fall in blood pressure in 5 of the patients studied, there was no relief of symptoms. Although the number of patients studied is small it is believed these changes were not of sufficient magnitude to warrant the routine use of this type of therapy in the management of essential hypertension.

Sponge Biopsy in Cancer Diagnosis.—After citing certain shortcomings of the vaginal smear technic, Gladstone presents a method which represents a simplified technic for obtaining living cells and clumps of cells in a form suitable for paraffin embedding directly from the tissue suspected. It consists essentially of rubbing a piece of sponge over the suspected tissue. Fluid and cells exuding from the tissue will be absorbed by the sponge which is then dropped into a small bottle of 10 per cent formaldehyde or other fixative. The sponge and its absorbed contents are then treated as one would treat a block of tissue for embedding, cutting and staining (hematoxylin and eosin) prior to microscopic examination. A sponge of protein composition such as gelatin is particularly suitable for this purpose. The author uses an absorbable gelatin sponge 2 by 2 by 5 cm. It is clamped along one margin by a surgical sponge forceps. After insertion of a vaginal speculum and visualization of the cervix the sponge is rubbed firmly over the mucosal surface and mucoepithelial junction of the external os. The author has examined eighty-eight slides from sponges rubbed over tumorous and nontumorous tissues. In general the tumor cells when present are so numerous and so readily recognized as to permit prompt diagnosis. The cells are well preserved and well fixed. They show the characteristic changes.

American Journal of Pathology, Ann Arbor, Mich.

24:1137-1320 (Nov.) 1948

*The Pneumonitis and Granulomatosis Peculiar to Beryllium Workers. F. R. Dutra.—p. 1137.
Paragangliomas: Review of Subject and Report of 5 Original Cases. O. A. Brines and E. R. Jennings.—p. 1167.
Cytologic Features of Carcinomas as Studied by Direct Smears. E. Hauptmann.—p. 1199.
Diffuse Interstitial Myocarditis in Children. R. K. House.—p. 1235.
Structure of Glomerulus of Human Kidney. J. F. A. McManus.—p. 1259.
Cellular Changes in Rabbits During Antibody Formation: I. Response to Eberthella Typhosa. C. McNeil.—p. 1271.
Thrombotic (Embolic) Aortic Occlusion: Its Occurrence Among Mentally Sick Patients. G. S. Strassmann.—p. 1289.

Beryllium Pneumonitis.—Dutra shows that exposure to dust and fumes containing beryllium has resulted in a number of cases of pulmonary disease. These are of two fairly distinct clinical types: an acute pneumonitis and a protracted pulmonary fibrosis and emphysema. In acute pneumonitis there is a boggy, generalized consolidation of lobes, simulating the gray hepatization in lobar pneumonia. Microscopically, there is a diffuse intra-alveolar exudate composed of large mononuclear phagocytes (septal cells) and edema fluid. Intraseptal lymphocytes and plasma cells are also fairly numerous. With chronic pulmonary fibrosis (granulomatosis) the lungs have been voluminous and emphysematous. Many fine nodules were scattered diffusely throughout the lungs, and the right ventricle of the heart was enlarged. The granulomas which are typical of beryllium disease are formed in part within alveolar spaces by the organization of exudate and in part within the septal and peritruncal connective tissues. They are comprised of central regions of fibrinoid material or granular debris, and the central regions are surrounded by a peripheral zone of fibrosis in which there is an infiltration of lymphocytes and plasma cells. The centers of the granulomas are occasionally occupied by giant cells of the Langhans' type. There are conchoidal bodies in most cases, sometimes within giant cells, sometimes lying free in debris or in fibrous tissue. Granulomas similar to those of the lungs have been found in the skin and subcutaneous tissues into which beryllium oxide or phosphors have accidentally been introduced.

American Journal of Surgery, New York

76:637-794 (Dec.) 1948

Colloid Adenocarcinoma Involving Perianal Region, Anus, Rectum or Sigmoid Colon. J. R. Hill and N. D. Smith.—p. 642.
*Choice of Operation in Carcinoma of Left Half of Large Bowel. R. W. McNealy and F. D. Wolfe.—p. 646.
Surgical Management of Lesions of Large Bowel. H. E. Bacon and G. D. Vaughan.—p. 648.
Selection of Patients and Anastomotic Procedures for Carcinoma of Rectum and Rectosigmoid. R. R. Best.—p. 654.
Polyposis of Colon in Children. J. G. Kerr.—p. 667.
Treatment of Hemorrhoids. G. J. Hamilton.—p. 672.
Problem of Foreign Bodies in Colon and Rectum. F. G. ReBell.—p. 678.
Sacral and Presacral Tumors. S. T. Ross.—p. 687.
Organization and Operation of Department of Proctology in U. S. Veterans Hospital: Some Experiences Gained from First Year's Operation. W. C. Bernstein.—p. 694.
Procedures Used in Treatment of Complicated Fistulas. D. R. Laird.—p. 701.
*One Year's Treatment of Non-Specific Ulcerative Colitis with Intestinal Extract. B. Haskell and M. H. F. Friedman.—p. 709.
*Surgical Treatment of Non-Specific Ulcerative Colitis. W. A. Fansler and H. M. Frykman.—p. 713.
Polypoid Lesions of Colon and Rectum. R. A. Scarborough and R. R. Klein.—p. 723.
Role of Pathologist in Diagnosis of Polypoid Lesions of Colon and Rectum. F. C. Helwig.—p. 728.
Surgical Treatment of Polyps of Large Intestine. R. B. Cattell.—p. 733.

Operation in Carcinoma of Left Half of Large Bowel.—McNealy and Wolfe say that the aim of each operation for carcinoma of the large bowel is to remove completely the tumor and adjacent tissues that might be involved. Restoration of bowel continuity and sphincter control should be provided when possible, but under no circumstances should one sacrifice completeness of dissection and resection. In those portions of the left half of the large bowel that are easily accessible a wide resection with primary anastomosis is the most desirable operation. However, even a mild degree of obstruction and consequent distention are contraindications to this operation. Retention of barium in the colon following previous roentgenologic examination makes primary anastomosis extremely hazardous. If there is evidence of barium or fecal material in the colon, the operation is postponed until the bowel is emptied of its contents. If the bowel can be decompressed by enemas, chemical biostatics will reduce the bacterial flora to a level compatible with primary healing. In addition to the local factors the vitamin level and the efficiency of the liver are important. An adequate blood supply can usually be assured if one is careful to divide the mesentery in a manner that will not impede the free flow of blood to the cut ends of the bowel. The crushing of these ends which are later to be used in the anastomosis is unsafe. There are patients who are not suitable for resection followed by primary anastomosis. Patients who have remained obstructed until their condition has assumed emergency proportions may require immediate colostomy. The authors oppose the Mikulicz procedure when the patient's condition is complicated by distention of the colon. Carcinomas located at or near the peritoneal reflection and those below this level are probably best managed by a one stage abdominoperineal resection. If obstruction exists, a primary colostomy is necessary. In the authors' 266 cases the abdominoperineal operation was employed in 188, primary anastomosis in 50 and permanent colostomy in 18 cases. The Mikulicz operation was used in only 1 patient; 9 patients refused operation. The authors have tried to adapt each operation to the requirements of the individual patient.

Intestinal Extract in Ulcerative Colitis.—Entertaining the possibility that nonspecific ulcerative colitis is due to a deficiency of an intrinsic protective factor which is present normally in the bowel mucosa, Haskell and Friedman used extracts of hog's intestinal mucosa in patients with this disorder. After their studies had been in progress for some months they learned that similar experiments were being made in England. To date Haskell and Friedman have used the intestinal extract in 71 patients, but in most of them the time interval which has elapsed since treatment was begun has been too short to permit evaluation of the results. The present report is, therefore, restricted to a study of 27 patients who have been under treatment for a minimum period of one year. Diagnosis was established on the basis of clinical history, sigmoidoscopy, roentgenologic bowel studies, examination of the stools and repeated stool cultures which were negative for pathogenic organisms. The same criteria were used for evaluating the results of treatment. Thirteen of the 27 patients showed both symptomatic and sigmoidoscopic improvement; in 8 others improvement was evident only on sigmoidoscopic examination and 3 others showed only symptomatic improvement; in the remaining 3 patients no improvement was noted. After remission of symptoms, withdrawal of the intestinal extract or substitution of a placebo resulted in relapse, with remission occurring again on resumption of treatment. It is probable that sustained improvement can be maintained only by continued administration of the extract.

Surgical Treatment of Ulcerative Colitis.—Fansler and Frykman believe that there is no yardstick which will definitely indicate when to abandon conservative measures and resort to surgical treatment in ulcerative colitis. The more recent trend is toward earlier and more frequent surgical intervention. Operations found most useful are (1) ileostomy alone; (2) ileostomy with complete colectomy, with or without removal of the rectum; (3) partial or complete colectomy with anastomosis of the ileum to the remaining segment of colon or rectum, and (4) vagotomy. Until recently surgical treatment of ulcerative colitis has been directed entirely toward the intestinal tract. In October 1946 Dennis at the University of Minnesota performed a transthoracic vagotomy for this condition. In March 1948 he reported 19 cases in which he had done a bilateral vagotomy for the treatment of idiopathic ulcerative colitis and regional enteritis. Of this group 73 per cent had either shown definite improvement or had become entirely asymptomatic. One of the authors, Fansler, made proctoscopic observations on a considerable number of the patients in the series operated on by Dennis and was so impressed that the procedure was recommended to several patients under their care. Transthoracic vagotomy was done in 4 of their patients. One patient appears to be cured, 2 show improvement and the fourth shows moderate improvement. Considerable time must elapse before it can be determined whether complete resolution of the chronic inflammatory process will occur. In general vagotomy seems more applicable in the acute and early chronic types of the disease before irreparable damage to the colon has occurred. In the cases of intractable disease in which the colon has been converted into a thickened, fibrotic tube lined chiefly with infected granulation tissue and in those showing evidence of polyp formation, the methods of intestinal surgery are the procedure of choice.

American Review of Tuberculosis, New York

58:479-582 (Nov.) 1948

Further Studies on Dihydrostreptomycins. G. Rake, F. E. Pansy, W. P. Jambor and R. Donovick.—p. 479.
Experimental Evaluation of Dihydrostreptomycin. A. O. Edison, B. M. Frost, O. E. Graessle and others.—p. 487.
Dihydrostreptomycin: Its Effect on Experimental Tuberculosis. W. H. Feldman, A. G. Karlson and H. C. Hinshaw.—p. 494.
*Laboratory and Clinical Investigation of Dihydrostreptomycin. L. B. Hobson, R. Tompsett, C. Muschenheim and W. McDermott.—p. 501.
*Clinical Administration of Dihydrostreptomycin in Tuberculosis: Preliminary Report. H. C. Hinshaw, W. H. Feldman, D. T. Carr and H. A. Brown.—p. 525.
Distribution of Dihydrostreptomycin in Various Body Fluids. L. Levin, D. T. Carr and F. R. Heilman.—p. 531.
*Results of Sanatorium Treatment and Collapse Therapy. F. A. H. Simmonds and W. J. Martin.—p. 537.
Pleural Effusion Simulating Elevated Diaphragm. J. J. Cincotti, S. T. Allison and J. M. Nilsson.—p. 554.
Histoplasmosis. W. B. Dubin, C. G. Culbertson and H. P. Friedman.—p. 562.
Preservation of BCG Strain. F. Van Deinse.—p. 571.

Dihydrostreptomycin.—According to Hobson and his associates dihydrostreptomycin is an antibacterial agent which has been prepared by catalytic hydrogenation of streptomycin. It differs from the latter structurally only in having a hydroxyl instead of a carbonyl group in the streptobiosamine portion of the molecule. The present study indicates that the toxicity of dihydrostreptomycin differs significantly from that of streptomycin. Both drugs may cause a variety of toxic reactions in human beings when administered over long periods. Dihydrostreptomycin was found to be less neurotoxic than streptomycin. In the patients treated in this study, evidence of vestibular damage appeared later and less uniformly with 5.0 Gm. of dihydrostreptomycin daily than it has in patients given 3.0 Gm. of streptomycin daily. Dihydrostreptomycin is also well tolerated by patients who are hypersensitive to streptomycin. Five patients were given the dihydro derivative in doses up to 2.0 Gm. daily without untoward reaction at times when hypersensitivity to streptomycin was readily demonstrable. In the 12 cases of pulmonary tuberculosis reported here, the therapeutic results were judged to be as good as those that have been obtained with streptomycin. Resistant strains of tubercle bacilli have emerged during treatment with dihydrostreptomycin in the same fashion as with streptomycin. Highly resistant strains, not inhibited by 1,000 micrograms per cubic centimeter of one compound, are similarly resistant to the other. Dihydrostreptomycin should prove to be useful in the treatment of patients unable to tolerate streptomycin because of hypersensitivity. The lower neurotoxicity of the dihydro derivative also suggests that it is preferable to streptomycin for the treatment of patients who require large doses or long courses of the antibacterial agent.

Clinical Use of Dihydrostreptomycin.—Hinshaw and his associates present clinical observations on 14 patients who were treated with dihydrostreptomycin and all but 1 of whom had some form of tuberculous process, including tuberculous meningitis, miliary tuberculosis, postoperative tuberculous empyema and pulmonary tuberculosis. The authors gained the impression that dihydrostreptomycin is much less toxic than streptomycin when given in comparable doses for similar periods. It may be administered to patients in doses of 2 to 3 Gm. per day for sixty days, or perhaps longer, with little danger of producing impairment of function of the organs of equilibration. The fact that dihydrostreptomycin may be administered to some patients who are allergic to streptomycin and the fact that eosinophilia has not been observed in this series of treated patients may be important. The only unfavorable attribute of dihydrostreptomycin noted was irritation of the tissues at the site of injection. The irritation is appreciably more severe than that produced by streptomycin. Intrathecal injection of dihydrostreptomycin is not recommended for the treatment of meningitis unless a less irritant form of the drug can be produced. Patients with meningitis treated with dihydrostreptomycin might be given purified streptomycin intrathecally. The authors feel that the series of patients reported on here is not sufficiently large, nor is the period of observation sufficiently long, to have revealed all of the possible toxic potentialities of dihydrostreptomycin.

Sanatorium Treatment and Collapse Therapy.—The data for this investigation by Simmonds and Martin were derived from the records of 3,833 persons discharged from Clare Hall County Hospital during the nine years 1937 to 1945. These patients were admitted from the County of Middlesex and were mainly derived from industrial working class or "black-coated" workers and their families. The authors say that the results of treatment in the present series appear to show definite improvement over earlier comparable series of patients in England. This improvement is particularly shown in the group in whom collapse treatment was applied more extensively than in earlier years (approximately 70 per cent). The chance of survival is almost doubled by such treatment. Collapse treatment is the most valuable method at present known for insuring sputum conversion in "positive" patients, and for their recovery, as estimated by living for five years. Such treatment should be employed as thoroughly as possible, but maintained only when the collapse is made efficient.

Annals of Allergy, Minneapolis

6:629-762 (Nov.-Dec.) 1948. Partial Index

Management of Pre-Allergic Child. B. Ratner.—p. 629.
Topical Application of Thephorin in Pruritic Dermatoses. C. W. Laymon and J. F. Schmid.—p. 638.
Nethaphyl in Bronchial Asthma. S. W. Simon.—p. 662.
Clinical Evaluation of Orthoxine in Treatment of Allergic Diseases. F. W. Wittich.—p. 664.
Crymotherapy and Anaphylaxis. D. E. Frank.—p. 667.
Integration of Practice of Allergy and Psychiatry. S. J. Prigal.—p. 669.
Relief of Asthma by Means of Low Melting Point Suppositories. S. D. Lockey, J. H. Henkel and Lory C. McAllister.—p. 672.
Asymptomatic Eosinophilia Following Penicillin Administration: Report of Case. M. S. Berk and S. B. Sostek.—p. 675.
Dermatitis Caused by Electrode Jelly. I. Fond.—p. 680.
Personal Experience with "Antihistaminics." L. F. Schiff.—p. 682.
Some Uncommon Reactions to Common Foods. W. D. Langley.—p. 684.
Significant Allergenic Air-Borne Nonpathogenic Bacteria, Their Incidence, Types of Allergies and Treatment: Three-Year Study. P. Shonwald and E. F. Deppe.—p. 687.
Allergic Eczematous Contact-Type Dermatitis from Odd Things or in Odd Ways. M. Leider and Dorothy Furman.—p. 693.
Clinical Evaluation of New Antihistaminic Drug, "Antistine." M. A. Kaplan and N. J. Ehrlich.—p. 697.

Annals of Internal Medicine, Lancaster, Pa.

29:587-764 (Oct.) 1948

*Pathogenesis of Rheumatic Fever. W. J. Kerr.—p. 587.
Use of Estrogens in Medicine. E. L. Sevringhaus.—p. 595.
Note on Coronary Occlusion and Myocardial Infarction Found Post Mortem at Massachusetts General Hospital During Twenty Year Period from 1926 to 1945 Inclusive. C. H. Wang, E. F. Bland and P. D. White.—p. 601.
Effect of Intravenously Administered Oxygen on Symptoms and Vital Capacity in Bronchial Asthma. H. Markow, M. Jacobi, H. Rascoff and others.—p. 607.
Pathogenesis of Coccidioidomycosis with Special Reference to Pulmonary Cavitation. C. E. Smith, R. R. Beard and Margaret T. Saito.—p. 623.
*Treatment of Rocky Mountain Spotted Fever with Chloromycetin. M. C. Pincoffs, E. G. Guy, L. M. Lister and others.—p. 656.
Psychoanalysis. K. E. Appel.—p. 664.
Essential Familial Hypercholesterolemia. C. F. Wilkinson Jr., E. A. Hand and M. T. Fliegelman.—p. 671.
Subjective Manifestations of Hyperactive Carotid Sinus Reflex. L. H. Sigler.—p. 687.
Penicillin Treatment of Streptococcal Pharyngitis. J. P. Loge and E. D. Kilbourne.—p. 698.

Pathogenesis of Rheumatic Fever.—According to Kerr, there is abundant evidence that micro-organisms of the Streptococcus group are the etiologic agents which initiate a train of reactions resulting in the lesions characteristic of rheumatic fever. The seasonal occurrence of outbreaks of rheumatic fever at the time of year when streptococcus infections are prevalent lends support to the view that these organisms are causal factors. The silent period of some days to two or three weeks following the pharyngeal symptoms is one of the characteristic features of rheumatic fever. A similar pause is observed in scarlet fever before the renal, articular and cardiac manifestations appear. It is during this period that immune mechanisms are set in motion. An increased antistreptolysin titer is almost constantly observed. The clinical manifestations of varying severity then make their appearance in the synovial membranes and other connective tissues, in the cardiac valves, myocardium and pericardium, in the skin, brain, lungs and kidneys, with symptoms and signs peculiar to the organs and structures concerned. The immunologic processes which are involved in rheumatic fever and scarlet fever are not completely understood. There are, however, some clues which shed light on the problem and point the way for future study. Kerr mentions some of these clues, giving particular attention to Cavelti's search for autoantibodies in the serum of patients with active rheumatic fever. These studies suggest that the etiologic agent, presumably the hemolytic streptococcus, by injury to, or in combination with, the connective tissues of the body produces autoantibodies which act in vivo to bring about lesions which may be progressive or may be reactivated by repeated exposure to the same organism. It is assumed that after the silent period the "trap is sprung," presumably by antigenic substances which are developed by the tissues of the host and perhaps are in the nature of autoantibodies.

Chloromycetin in Rocky Mountain Spotted Fever.—Pincoffs and his co-workers report on chloromycetin which was prepared from liquid cultures of a Streptomyces shown to possess antibacterial activity. It is a crystalline substance relatively insoluble in water, but well absorbed from the gastrointestinal tract. The toxicity of the drug is apparently low. When given intravenously in mice and intramuscularly in dogs, chloromycetin is well tolerated in single doses up to 100 mg. per kilogram of body weight. Reports on the therapeutic use of chloromycetin orally in man have indicated the absence of toxic manifestations. The authors present results obtained with chloromycetin in 15 proved cases of Rocky Mountain spotted fever. Chloromycetin was administered orally in the form of tablets of 0.25 Gm. No fatality resulted among the 15 patients, although 4 had a virulent form of the disease. The evidence presented indicates that the new antibiotic chloromycetin, in addition to its previously demonstrated effectiveness in the treatment in man of scrub typhus and of epidemic typhus, is also effective in the treatment of Rocky Mountain spotted fever. Further studies will be required to determine whether murine typhus, Q fever and other members of the family of rickettsial diseases will yield in similar fashion to this therapeutic agent. The questions of the proper dosage of the drug, and particularly the number of days during which its administration should be continued, are still undetermined. In the present small series of cases no recurrence of the disease was observed when the drug was discontinued after twenty-four hours of normal temperature.

Archives of Pathology, Chicago

45:681-806 (June) 1948

Boeck's Disease (Boeck's Sarcoid). J. Rosenthal and I. Feigin.—p. 681.
*Calcific Disease of Aortic Valve. H. N. Hultgren.—p. 694.
Influence of Sympathectomy on Necrosis Developing in Rabbits' Ear After the Skin Has Been Frozen with Solid Carbon Dioxide. L. Kreyberg.—p. 707.
Effects of Electrolyte Imbalance on Adrenal Gland. J. Nichols.—p. 717.
Effect of 20-Methylcholanthrene on Transplantability of Skin on Mice. M. Silberberg, Ruth Silberberg and B. Hulbert.—p. 722.
*Pulmonary Alveolar Lining in Bronchiectasis. C. F. Watts and J. R. McDonald.—p. 742.
Congenital Megaloureter and Hydroureter: Pathogenesis and Classification. G. E. Irvin and J. E. Kraus.—p. 752.
Anomalies of Coronary Arteries: Report of 4 Cases. N. K. White and J. E. Edwards.—p. 766.
Production of Antireticular Cytotoxic Serum. D. Movitz, Katharine M. Howell, O. Saphir and A. Strauss.—p. 772.

Calcific Disease of Aortic Valve.—The material studied by Hultgren consisted of 100 hearts from unselected, consecutive necropsies made on adults in the department of pathology of the Stanford University School of Medicine. Calcium deposits were observed in the aortic valves in 46 hearts. In 34 of these hearts no gross or histologic evidence of valvular rheumatic disease was found. Such calcium deposits were found more frequently in older persons, and their size and number were greater in the higher age groups. Microscopic examination of the valves revealed that in most cases there were alterations of the dense connective tissue at the base of the leaflet and to a lesser degree in the fibrosa of the leaflet itself. These alterations resembled degenerative processes occurring elsewhere in the vascular system. Calcifications were found most frequently in these areas, suggesting that the deposition of calcium is part of the same degenerative process. The findings suggest that in many cases calcifications of the aortic valves are a result of a purely degenerative process and do not have a rheumatic origin.

Pulmonary Alveolar Lining in Bronchiectasis.—Watts and McDonald say that although under ordinary circumstances the alveoli of the adult do not have a visible lining of cells, a discernible lining of cells may be associated with many pathologic conditions of the lungs. This perplexing situation is largely responsible for the many discrepant accounts of the normal histologic structure of the pulmonary alveolus. The authors report the results of a detailed study of the pulmonary alveolus made in cases of bronchiectasis. Fifty human lungs that had been removed surgically because of bronchiectasis were taken indiscriminately from the pathology museum of the Mayo Clinic. In 4 of the 50 cases of bronchiectasis the lungs presented other pathologic processes as well (abscess in 2 cases, empyema in 1 case and tuberculosis in 1 case). The authors found that in bronchiectasis the pulmonary alveoli commonly had a visible continuous lining of cells. These cells were derived from two sources: (1) from bronchial epithelial cells and (2) from the pericapillary cells of the alveolar wall. The latter origin was far more frequently encountered than was the former. The appearance of the cells of alveolar origin differed from that of the cells of bronchial origin and, in addition, the cells of alveolar origin were frequently phagocytic even after they had assumed a typical epithelium-like structure and arrangement. Although no conclusions were drawn regarding the entodermal or mesenchymal nature of the lining cells of alveolar origin, it was conjectured that their parent cell also gave rise to the alveolar phagocyte.

Archives of Physical Medicine, Chicago

29:751-806 (Dec.) 1948

Heating Effects of Microwaves With and Without Ischemia. R. E. Worden, J. F. Herrick, K. G. Wakim and F. H. Krusen.—p. 751.
Comparative Study of Short Wave and Microwave Diathermy on Blood Flow: Role of Somatic and Sympathetic Nerves in Vascular Response to Deep Tissue Heating. L. L. Siems, A. J. Kosman and S. L. Osborne.—p. 759.
*Experimental Lenticular Opacities Produced by Microwave Irradiations. A. W. Richardson, T. D. Duane and H. M. Hines.—p. 765.
Early Ambulation in Surgical Convalescence. N. Glickman, R. W. Keeton, W. H. Cole and others.—p. 770.

Lenticular Opacities Produced by Microwave Irradiations.—Richardson and his co-workers say that the development of cataract as the result of irradiations is not a new discovery, but investigators in the past have been concerned chiefly with the effects of infra-red, ultraviolet and roentgen irradiations. Sinus disorders have been treated extensively by the use of short wave diathermy for a number of years and have proved safe when used as prescribed. With the production of a new microwave generator which propagates 12.25 cm. waves, a new band of the electromagnetic spectrum has been offered for medical therapy. The authors investigated both the immediate and the delayed effects of microwave irradiations on the eye. A direct single exposure of rabbit eyes to 12.25 cm. microwaves at 5 cm. distance for fifteen minutes with 100 watt power output resulted in cataractous lenticular opacities after a delay of three to nine days. A series of repeated exposures of a smaller magnitude resulted in cataractous lenticular opacities after a delay of two to forty-two days. Four rabbits irradiated for seventeen to twenty minutes at 5 cm. distance revealed cataract formations immediately after the irradiations. Since other workers have shown that the microwave generator serves an adequate purpose in medical therapy by inducing temperature increases in selected areas of the body, the findings in this report should not discourage its employment in those areas. Precaution should be taken in the future with regard to irradiations in the region of the face and orbit.

Archives of Surgery, Chicago

56:693-818 (June) 1948

- *Causation and Treatment of Painful Stiff Shoulder: Subdeltoid Bursitis, Periarthritis, Tendinitis and Adhesive Capsulitis. H. W. Meyerding and J. C. Ivins.—p. 693.
- Anatomic Mechanics Underlying Gastrojejunostomy, with Particular Reference to Anterior or Antecolic Types of Anastomoses. R. W. McNealy and J. A. Glassman.—p. 709.
- Meckel's Diverticulum. J. W. McRoberts.—p. 718.
- Arteriovenous Fistula of Lung: Treated by Ligation of Pulmonary Artery. G. B. Packard and J. J. Waring.—p. 725.
- *Reconstruction Following Irradiation Injuries. P. W. Greeley.—p. 741.
- Surgical Repair of Cleft Lips. J. B. Brown and F. McDowell.—p. 750.
- Indications for and Advantages of Shoemaker-Billroth I Gastric Resection. O. T. Claggett and J. M. Waugh.—p. 758.
- Intracranial Pneumocephalus: Report of Case. D. C. Straus.—p. 766.
- Atypical Neuralgia of Face. E. R. Schmidt and H. A. Szujewski.—p. 785.
- Surgical Uses of Polythene: Experimental Study. J. H. Grindlay and F. C. Mann.—p. 794.

Treatment of Painful Stiff Shoulder.—Meyerding and Ivins present clinical observations on 150 consecutive cases of stiff painful shoulder, in which manipulation with patient under anesthesia, surgical excision of calcified plaques or bursas, injection or needling was performed at the Mayo Clinic during the years 1942 through 1946. The duration of symptoms varied, but in 65 it was of less than a year. Roentgenographic examination revealed calcification in 59 cases and osteoporosis in 34. Since the evidence of calcification depends on the degree of deposit, calcification doubtless was present in more cases. Pain, stiffness and local tenderness were the characteristic symptoms, and they often followed some exertion, such as gardening, painting and washing walls. The pain was usually intermittent. The patient with the acute stage of the disease or with intense pain, local tenderness, slight fever and the arm maintained at the side for protection may be treated for a few days by rest in bed, local application of heat, increased intake of fluid, maintenance of elimination and traction, together with administration of anodynes. Abduction should be encouraged, and conventional diathermy and roentgen therapy may be included, after which patients often are relieved. The authors discuss the treatment to be employed in the subacute and recurrent attacks. In 69 of the 150 cases manipulation with the patient under anesthesia was performed; in 32 additional cases manipulation with injections of procaine hydrochloride into the suprascapular nerve was used; in 31 a needling operation was performed, to pierce and break up the calcareous deposits, and in 18 surgical excision of the calcareous masses was performed. Forty of the 150 patients received roentgen therapy in addition to other treatment, some of them prior to admission at the clinic. Acute lesions have proved more amenable to roentgen treatment than have the more chronic lesions. The authors present detailed reports of 9 patients to illustrate certain points in diagnosis and treatment. By following the procedures outlined in this paper, satisfactory functional results have been obtained in 85 per cent of the cases.

Reconstruction Following Irradiation Injuries.—Greeley says that although in comparison with the vast number of treatments with roentgen rays and radium the actual total of injuries is relatively small, to the plastic surgeon who sees patients with such injuries the number seems to be too large. Some of these lesions result from incidental reactions following treatment of deep lesions, while many others arise in the hands of untrained or inexperienced operators. Typical symptoms of chronic roentgen ray dermatitis are severe pain, itching and ulceration. Frequently the symptoms are so severe that they produce addiction to morphine. After surgical excision relief is dramatic. Permanent cure can be anticipated as soon as the defect created by the surgical excision has been closed. When one considers the avascularity produced by an irradiation injury it becomes apparent that there is little place for conservative management, in spite of enthusiastic reports given by the advocates of local applications of radon paste or the Aloe vera leaf. A permanent cure can be anticipated only when all of the damaged tissue has been excised back to an area of good blood supply. If this excision is not wide enough, reconstructive operations will fail, and later degeneration may occur around or below the site of the original excision. The severe pain and itching are relieved as soon as the damaged tissues have been excised. The remaining problem is one of reconstruction of the cutaneous defect created by surgical excision. A few defects may be closed by primary suture after adequate undermining of the border flaps, so that they can be mobilized without tension, but the majority of the cutaneous defects will, because of their nature and size, have to be covered by a skin graft or skin flap.

Arkansas Medical Society Journal, Fort Smith

45:111-130 (Nov.) 1948

- Occupational Health and Its Significance in Trends of Medical Practice. C. A. Nau.—p. 111.
- Control of Mortality in Thyroid Surgery. J. H. Hayes.—p. 114.

45:131-146 (Dec.) 1948

- Rational Approach to Pediatric Surgery. H. S. Stern.—p. 131.
- Relationship of Urology to Other Specialties. H. K. Wade Jr.—p. 134.

California Medicine, San Francisco

69:409-488 (Dec.) 1948

- Heart Failure of Pulmonary Origin. J. McMichael.—p. 409.
- Causalgia: Review. E. M. Webb and E. W. Davis.—p. 412.
- Surgical Significance of Acute Abdominal Pain. I. W. Hinton.—p. 418.
- The Nervous Woman in Industry. K. D. Gardner.—p. 422.
- At Head of Table. W. Bourne.—p. 425.
- Laboratory in Diagnosis of Communicable Diseases. M. H. Merrill.—p. 429.
- *Late Results of Uretero-Intestinal Implantation. F. Hinman.—p. 433.
- Hemagglutination by Viruses—Its Biological Implications. E. Jawetz.—p. 435.
- Changes in Urinary Tract in Pregnancy. D. G. Morton.—p. 439.
- General Surgical Complications of Pregnancy. R. B. McCarty.—p. 440.
- Chemotherapy for Renal Infections. D. A. Charnock.—p. 445.
- *The Electrocardiogram in Rheumatic Fever. J. Kahn, E. Shapiro and M. L. Lipkis.—p. 449.

Ureterointestinal Implantation.—Hinman reports 31 patients with exstrophy of the bladder who have had ureteroenterostomy. Six patients died. Four deaths were surgical, 2 from acute peritonitis five and eight days after transplantation by the Coffey method before the days of succinylsulfathiazole. A third patient, aged 4 months, died two days after operation, and necropsy revealed extensive necrosis of the ends of both ureters with leakage. Between 1 and 2 years is now thought to be the optimum age for operation. The fourth patient, a child aged 16 months, died from an anesthetic. With improved methods of preparation and technic the surgical risk may be estimated conservatively for this group to be well under 5 per cent. The other deaths occurred respectively seven years and nine months after operation, in the former probably following an attack of recurrent pyelonephritis, in the latter case from shock following cystectomy and plastic repair of the external genitalia. Of the 25 patients with exstrophy who are living, 18 have survived more than six years, 7 of these more than ten years and 4 more than fifteen years, since the operation. Of these 4, 3 have been in good health twenty-eight years, eighteen years and fifteen years respectively. The fourth was as well as the others for twenty years and had married, but for some unknown reason began to have attacks of pyelonephritis. Another patient surviving twelve years had to have permanent nephrostomy ten years after operation, and still another patient ten years after ureteral transplantation shows definite hydronephrosis, which already was present before the operation and which may require nephrostomy later. Some of the remaining 19 patients have occasional attacks of fever readily controlled by the modern urinary antiseptics, but the majority of the 19 patients are in good health. A long term survival in good health can be expected after successful ureteral transplantation into the rectosigmoid, and the risk of the method does not contraindicate its use in the radical treatment of cancer of the bladder.

Electrocardiogram in Rheumatic Fever.—According to Kahn and his co-workers, in active rheumatic fever each segment of the electrocardiogram may be altered and the rhythm may be disturbed. By far the most common change is an increase in the P-R interval, which may occur in varying degrees up to complete dissociation of auricle and ventricle. With the return to normal of tachycardia, temperature, joint symptoms and blood findings, the P-R interval in most cases also returns to normal. In a few cases it may persist for weeks and months and permanent damage of the conducting tissue must be suspected. The change in the P-R interval varies with the acuteness of the disease process, and this applies also to the frequency of changes in the QRS-T or ventricular portion of the electrocardiogram in rheumatic fever. Gross widening of this segment beyond the normal of the person under observation may be considered important as would distinct shifting of the electrical axis. Elevation or depression of the S-T portion when marked or changing from time to time in serial observations or when associated with changes of the T portion is definitely important. T wave changes such as depression, diphasic character or inversion are in general an indication of myocardial or pericardial change. The most important arrhythmia occurring during the course of rheumatic fever is auricular fibrillation. Not all patients with rheumatic carditis, even when the disease is severe, show electrocardiographic changes. Pronounced electrocardiographic changes can occur without clinical evidence of disease. Taking of frequently repeated electrocardiograms is emphasized for the detection of cardiac involvement in rheumatic fever. The electrocardiographic changes in rheumatic fever are not specific for this disease, and consequently a certain amount of caution is necessary in drawing conclusions from electrocardiographic changes. In most cases of rheumatic fever the diagnosis is readily apparent on clinical grounds. The electrocardiogram is altered so much more frequently in rheumatic fever than in most diseases which might simulate it that the presence of a distinct change in the electrocardiogram may be looked on as a point indicative of this disease.

Cancer, New York

1:357-546 (Sept.) 1948

*Nitrogen-Mustard Therapy for Hodgkin's Disease, Lymphosarcoma, the Leukemias, and Other Disorders. M. M. Wintrobe and C. M. Huguley Jr.—p. 357.
Histological Effects of Nitrogen Mustards on Human Tumors and Tissues. Sophie Spitz.—p. 383.
Studies on Chemotherapy of Leukemia: I. Effect of Certain Nitrogen Mustards and Carbamates on Transmitted Mouse Leukemia. J. H. Burchenal, R. A. Lester, J. B. Riley and C. P. Rhoads.—p. 399.
On Possible Relationship Between Adrenocortical Function and Leukemic State. L. Levin.—p. 413.
Primary Malignant Neoplasms of Vesicovaginal Septum. H. R. Sauer, J. E. Macmanus and M. S. Blick.—p. 419.
Pancreato-Total Gastrectomy and Splenectomy for Advanced Carcinoma of Stomach. A. Brunschwig.—p. 427.
Anatomic Distribution of Intraepithelial Epidermoid Carcinomas of Cervix. *F. W. Foote Jr. and F. W. Stewart.—p. 431.*
Glomus-Jugularia Tumors. T. Winship, C. T. Klopp and W. H. Jenkins. —p. 441.
Resection of Stomach and Adjacent Organs in Continuity for Advanced Cancer. G. McNeer and A. James.—p. 449.
Histamine Content of Neoplastic Pulmonary Tissues. W. E. Bloomer and G. E. Lindskog.—p. 455.
Studies on Invasiveness of Cancer: Adhesiveness of Malignant Cells in Various Human Adenocarcinomas. M. McCutcheon, D. R. Coman and F. B. Moore.—p. 460.
*Association of Breast and Pelvic Disease. Virginia K. Pierce and D. P. Slaughter.—p. 468.
Studies of Liver Function in Patients Having Cancer of Breast. H. J. Tagnon and J. B. Trunnell.—p. 472.
Influence of Diet on Ability of Rat-Liver Slices to Destroy the Carcinogen N,N-Dimethyl-P-Aminoazobenzene. C. J. Kensler.—p. 483.
*Some Epidemiologic Features of Cancer. M. L. Levin.—p. 489.

Nitrogen Mustard Therapy.—Wintrobe and Huguley describe the effects obtained with methyl-bis (beta chloroethyl) amine hydrochloride, also called nitrogen mustard, in 102 patients. They included 32 patients with Hodgkin's disease, 11 with lymphosarcoma, 5 with reticulum cell sarcoma, 37 with leukemia and 17 with miscellaneous disorders. A palliative effect on adenopathy, fever, bone pain, splenomegaly and various other clinical symptoms has been observed in many patients with Hodgkin's disease, lymphosarcoma and leukemia. Nitrogen mustard produced remissions in a number of patients with Hodgkin's disease who were considered to be "roentgen ray resistant." Toxic manifestations of nausea and vomiting were observed in most patients after administration of nitrogen mustard. Nitrogen mustard therapy frequently resulted in a decrease in leukocyte count with lymphocytopenia and granulocytopenia. This was often accompanied by a variable decrease in red cells and a decrease in platelets. After the initial decrease in blood elements, an increase in red cells, even to complete disappearance of anemia and of thrombopenia, resulted in those patients responding favorably. In leukemia, a fall in the leukocyte count was often followed by a decrease in anemia or its complete disappearance. Ultimately nitrogen mustard therapy, like irradiation, proved ineffective, but ease of administration, effectiveness in some "roentgen ray resistant" cases and, rarely, a better tolerance for nitrogen mustard are advantages of nitrogen mustard as compared with roentgen ray therapy.

Association of Breast and Pelvic Disease.—Pierce and Slaughter subjected 100 women with breast disease to a gynecologic survey, including detailed histories, endometrial biopsies and vaginal smears. Eighty-three were found to have had or to have demonstrable pelvic disorders either in the past, at the first examination, or which developed while they were under observation. This did not include inflammatory lesions and changes resulting from obstetric wear and tear. The patients with benign breast lesions had more than twice as many pathologic changes in the female reproductive organs as had those with breast cancer. The incidence of pelvic disease in the entire group was nearly four times that of well women of comparable age. These results show the association of a cancer tendency in the two systems, so that some common etiologic factor might well be indicated. Clinically they point to the duty of the general surgeon to include a pelvic examination in the investigation of every woman with a breast lesion.

Epidemiologic Features of Cancer.—In applying the term "epidemiology" to cancer, Levin defines it as the study of what persons or groups of persons are most likely to have cancer and under what circumstances. A striking feature of cancer mortality in the past century has been its different course in the two sexes. Since 1915, any improvement in cancer diagnosis in females has been counterbalanced by improvement in cure rates, whereas in males the improvement in diagnosis was not so counterbalanced. Cancer of sites peculiar to each sex tended to increase in males and to decrease (with the exception of "ovary and fallopian tube") in females. The net result was a decrease in cancer mortality among females of about 6 per cent, while mortality in males increased during the same period by more than 8 per cent. Those concerned with providing improved diagnostic or treatment facilities for cancer are especially interested in its epidemiologic features, because such efforts will be more efficient to the extent that they are directed toward those persons who present the greatest risk of cancer. Discussing efforts directed toward the early discovery of certain forms of cancer the author mentions the use of vaginal smears to discover early uterine cancer. Here other factors, in addition to age, may prove useful as guides to what groups of women should be studied most intensively. Studies have shown that uterine cancer occurs more frequently among married than among single women; also, it is approximately three times more frequent among women who have had syphilis, and it is almost twice as frequent among Negro women as among white. Randall has demonstrated that women whose menopause is characterized by a period of menorrhagia suffer an increased incidence of carcinoma of the uterine fundus in later life. Case-finding procedures applied to the group that show higher than normal cancer incidence may be more effective.

Cincinnati Journal of Medicine

29:539-602 (Oct.) 1948

Treatment of Neuroses. Helen V. McLean.—p. 545.
Androgens in Advanced Cancer of Breast. J. L. DeCourcy.—p. 556.

29:603-670 (Nov.) 1948

Medicine Today in Poland and Finland. E. B. Ferris.—p. 603.
Medical Aspects of Artificial Radioactivity. C. M. Barrett and B. Felson. —p. 610.
Phytotoxic Properties of Normal, Pathologic and Irradiated Blood Serums and Their Usefulness in Medical Research. D. I. Macht.—p. 616.

29:671-750 (Dec.) 1948

Recent Advances in Treatment of Lymphomas and Leukemias. L. F. Craver.—p. 671.
Protein Needs in Surgery. *R. Elman.—p. 680.*
Salicylate Intoxication. H. F. Downing.—p. 694.

Endocrinology, Springfield, Ill.

43:275-354 (Nov.) 1948

Gonadotrophic Hormones and Ovarian Hyperemia in Rat. H. S. Kupperman, W. H. McShan and R. K. Meyer.—p. 275.
Critical Requirement for Pantothenic Acid by Adrenalectomized Rat. Mary E. Dumm and Elaine P. Ralli.—p. 283.
Simplified Technic for Hypophysectomy of Domestic Fowl. I. Rothchild. —p. 293.
Thyroglobulin Formation in Thyroid Follicle Visualized by "Coated Autograph" Technic. C. P. Leblond and J. Gross.—p. 306.
Mechanisms of Desoxycorticosterone Action: Effects of Liver Passage. D. M. Green.—p. 325.
Anterior Pituitary Growth Preparations: Relationship Between Nitrogen Storage and Other Criteria of Activity. P. D. Bartlett and O. H. Gaebler.—p. 329.
Correlation of Circulating Polymorphonuclear Leukocytes (Neutrophiles) with Adrenal Ascorbic Acid in Rat. A. Dury.—p. 336.

Florida Medical Association Journal, Jacksonville

35:335-398 (Dec.) 1948

Amebiasis: Electrocardiographic Changes in Patients Treated with Emetine Hydrochloride. W. Merritt.—p. 351.
The Low Sodium Diet. E. M. Isberg.—p. 356.
Congenital Defects. H. G. Morton.—p. 362.
*Peritoneal Dialysis in Treatment of Acute Uremia. J. A. Pendino and H. P. Hampton.—p. 368.

Peritoneal Dialysis in Acute Uremia.—Pendino and Hampton report a case of uremia in which peritoneal dialysis was successfully employed. They conclude that the treatment of azotemia due to acute renal failure by peritoneal lavage is of practical value. Careful control of fluid and electrolyte balance and treatment of anemia and acidosis are necessary for successful peritoneal lavage, and changes in the perfusing fluid electrolyte concentrations may be required. Peritoneal lavage may be indicated in the treatment of uremia of acute renal failure due to: (*a*) heavy metal poisoning, (*b*) intravascular hemolytic reactions, (*c*) sulfonamide drug intoxication and (*d*) burns or crushing injuries.

Indiana State Medical Assn. Journal, Indianapolis

41:1229-1332 (Dec.) 1948

Observation. W. K. Keller.—p. 1247.
Virus Diseases in Children. A. D. Kaiser.—p. 1250.
Case of Arsenic Encephalopathy Successfully Treated with BAL. J. B. Masters.—p. 1254.
Rupture of Jejunum and Ileum Due to Nonpenetrating Abdominal Trauma: Report of Five Cases. J. P. Powell, J. S. Battersby and T. B. Bauer.—p. 1256.

Journal of Gerontology, Springfield, Ill.

3:183-250 (July) 1948

Female Sex Hormone Replacement in the Aged Woman: Preliminary Report. W. H. Masters and W. M. Allen.—p. 183.
Excitability and Aging. F. Bourlière.—p. 191.
*Carotid Sinus Pressure as Aid in Detection of Atherosclerosis. J. I. Goodman and S. Wassermann.—p. 196.
Homes, Hotels and Other Institutions for the Aged. E. H. Moore. —p. 207.
Philadelphia's Recreational Project for Older People. Georgene E. Bowen. —p. 215.
Aristotle on Mental Aging. A. R. Chandler.—p. 220.

Carotid Sinus Pressure and Atherosclerosis.—Goodman and Wassermann investigated the carotid sinus reaction as a test for arteriosclerosis. In employing carotid sinus pressure in a series of patients, three characteristic cardiovascular reactions were found: (1) bradycardia or cardiac standstill (cardioinhibitory effect), (2) a clear, sustained drop in blood pressure (vasodepressor effect) and (3) a combination of these two (mixed effect). The concept is advanced that the vasodepressor effect is dependent on the presence of atherosclerosis in the aorta and the great vessels in which is lodged the sinoaortic apparatus. A drop in the systolic pressure greater than 20 mm. of mercury and persisting over three minutes is considered to be indicative of atherosclerosis of the aorta and the adjacent great vessels, conveniently termed proximal (central) atherosclerosis. Under this heading are included the aorta, innominate, subclavian and common carotid arteries. Marked pulsations in these vessels were of such common occurrence in the cases in which results of carotid sinus pressure tests were positive that they proved to be of diagnostic importance.

Journal of Investigative Dermatology, Baltimore

11:305-396 (Nov.) 1948

Mycosis Fungoides. E. K. Stratton.—p. 307.
Sensitivity to Intracaine. C. R. Rein and N. B. Kanof.—p. 311.
Accidental Vaccination: Cause of Confusion in Diagnosis of Lesions of Lip and Penis. L. L. Coriell, H. Blank and T. F. McNair Scott. —p. 313
Investigational Studies in Some Congenital and Acquired Defects of Hair in Children. L. Goldman and L. M. Mason.—p. 323.
Histologic Examinations of Fungous Infections of Nails. F. Sagher. —p. 337.
Further Studies on Treatment of Lupus Erythematosus with Sodium Para-Aminobenzoate. C. J. D. Zarafonetis, R. H. Grekin and A. C. Curtis.—p. 359.
Development of Epidermal Pigmentation in Negro Fetus. A. A. Zimmermann and T. Cornbleet.—p. 383.

Journal of Lab. and Clinical Medicine, St. Louis

33:1353-1502 (Nov.) 1948. Partial Index

Studies on Rh Antibodies. E. Witebsky and J. F. Mohn.—p. 1353.
Metabolism, Toxicity, and Manner of Action of Gold Compounds in Treatment of Arthritis: VIII. Effect of BAL and Other Thiol Compounds in Preventing Inhibition of Oxygen Consumption of Rat Tissues Produced by Gold Salts. W. D. Block, Naomi C. Geib and W. D. Robinson.—p. 1381.
Effect of Para-Aminobenzoic Acid on Metabolism and Excretion of Salicylate. R. M. Salassa, J. L. Bollman and T. J. Dry.—p. 1393.
Use of Penicillin and Streptomycin in Isolation of Poliomyelitis Virus from Fecal Specimens. Beatrice F. Howitt and V. H. Barnett. —p. 1402.
Effect of Commercial Heparin on Platelet Count. E. Fidlar and L. B. Jaques.—p. 1410.
Effect of Heparin on Platelets in Vivo. A. J. Quick, J. N. Shanberge and M. Stefanini.—p. 1424.
Effect of Vitamin K on Dicumarol-Induced Hypoprothrombinemia in Rats. E. J. Boyd and E. D. Warner.—p. 1431.
Ventricular Irregularities Induced by Sympatho-Adrenal Discharge and Chloroform. G. X. Trimble.—p. 1438.

Journal-Lancet, Minneapolis

68:411-446 (Nov.) 1948

Diagnosis and Treatment of Certain Congenital Cardiac Defects Amenable to Surgery. K. A. Merendino.—p. 411.
Regional Enteritis. R. D. Estrem.—p. 417.
Psychosomatic Medicine in General Practice. P. K. Arzt.—p. 423.
Clinical Experiences with New Antihistaminic Drug—Thephorin. M. Moncheck.—p. 428.
Use and Misuse of Streptomycin in Treatment of Tuberculosis. K. H. Pfuetze and Marjorie M. Pyle.—p. 431.

68:447-484 (Dec.) 1948

Advances in Diagnosis and Treatment of Thyroid Disease. Mavis P. Kelsey.—p. 447.
Use of Female Sex Hormone Products in General Practice. A. C. Barnes. —p. 454.
Pilonidal Disease. R. J. Webber.—p. 457.
Rice Diet Treatment in Hypertension as Observed by Patient. W. E. Morse.—p. 463.
Rectal Dilators in Treatment of Constipation. M. D. Finkel and A. J. Levine.—p. 467.
Changing Concept in Pneumonia. G. X. Trimble.—p. 469.

Journal of Nat. Cancer Inst., Washington, D. C.

9:57-128 (Oct.) 1948. Partial Index

Investigations on Properties of Agents Causing Fowl Tumors. L. Dmochowski.—p. 57.
*Carbamates in Chemotherapy of Leukemia. II. Relationship Between Chemical Structure, Leukopenic Action, and Acute Toxicity of Group of Urethan Derivatives. H. E. Skipper, C. E. Bryan, W. H. Riser Jr. and others.—p. 77.
Further Studies on Relation of Mammary-Tumor Agent to Mammary Tumors of Hybrid Mice. H. B. Andervont and Thelma B. Dunn. —p. 89.
Inheritance of Susceptibility to Tumors Induced in Mice. III. Tumors Induced with Methylcholanthrene in Backcross of C3H and JK Mice. W. J. Burdette.—p. 105.
Delay in Appearance of Palpable Mammary Tumors in C3H Mice Following Ingestion of Pollenized Food. W. Robinson.—p. 119.

Carbamates in Leukemia.—Skipper and his associates carried out toxicologic and hematologic studies on a series of carbamates consisting of twenty-seven compounds closely related to urethane. It was found that increasing the carbon chain of the ester group (from methyl through butyl) or substitution at the nitrogen position increased the toxicity of the resulting compound. Substitution of sulfur for the carbonyl oxygen increased the toxicity of the parent carbamates. Three variations of the ester group of urethane were accompanied by lessening of the leukopenic action of the molecule. A number of N-substituted carbamates with pronounced leukopenic action at nonlethal doses were uncovered. Potassium cyanate was not found to be leukopenic under the conditions of assay. Ethyl carbamate (urethane) was the only one of the series studied which caused a significant reversal of the differential leukocyte picture at two days after injection. Ethyl N-phenylcarbamate and N-carbethoxymorpholine tended in the direction of early preferential lymphocyte depression.

Journal of Nutrition, Philadelphia

36:425-522 (Oct.) 1948. Partial Index

Response of Dogs to Liver Extracts Containing the Pernicious Anemia Factor. W. R. Ruegamer, W. L. Brickson, N. J. Torbet and C. A. Elvehjem.—p. 425.
Southern Peas and Other Legume Seeds as Course of Protein for Growth of Rats L. R. Richardson.—p. 451.
Occurrence of 5 B-Vitamins in Tissues of Pregnant Rats Fed Rations Satisfactory and Unsatisfactory for Reproduction. Gladys Everson, Eleanor Williams, Elizabeth Wheeler and others.—p. 463.
Reproduction and Lactation of Rats Receiving Pork Diets. L. M. Henderson, B. S. Schweigert, A. K. Mozingo and C. A. Elvehjem. —p. 479.
Cholestrol Content of Cows' Milk. Berthe Nataf, O. Mickelsen, A. Keys and W. E. Petersen.—p. 495.
Basal Metabolism of 218 Girls and Young Women of Southern Arizona, Fourteen to Twenty-Three Years of Age, Inclusive. Ethel M. Thompson, Elizabeth W. Cox and Ada M. Ridgway.—p. 507.

Journal of Urology, Baltimore

60:697-796 (Nov.) 1948

Paraganglioma (Pheochromocytoma): Case Report. C. A. Smith.—p. 697.
Hydronephrosis Due to Aberrant Vessels: Remarkable Familial Incidence with Report of Cases. G. Aaron and M. A. Robbins.—p. 702.
Modified Pyeloplasty for Correction of Hydronephrosis Due to Extrinsic Obstructions at Ureteropelvic Junction: Case Report. B. Klotz.—p. 706.
Leukoplakia of Renal Pelvis. H. T. Low and H. E. Coakley.—p. 712.
Anatomy of Pararenal System of Veins, with Comments on Renal Arteries. B. J. Anson, E. W. Cauldwell, J. W. Pick and L. E. Beaton. —p. 714.
Hypertension Associated with Congenital Ureteral Valve. H. Ostry. —p. 738.
Blood Loss in Open Prostatic Surgery. A. E. Goldstein and S. W. Rubin.—p. 743.
Epispadias with Incontinence: Method of Treatment. H. B. Mays. —p. 749.
Cystitis Emphysematosa: with Report of Twelfth Human Case Diagnosed at Cystoscopy. Marie Ortmayer.—p. 757.
Extra-Ossification of Rectus Abdominalis Muscles Following Suprapubic Cystostomy. O. S. Lowsley and A. Gentile.—p. 763.
Osteitis Pubis. M. L. Rosenberg and S. A. Vest.—p. 767.
Erythroplasia of Queyrat: Report of Case. L. E. McCrea.—p. 776.
Neuromuscular Dysfunction of Urinary Tract. J. C. Kimbrough, D. K. Worgan and J. N. Furst.—p. 780.
Modified T Tube for Use in Surgical Repair of Ureteral Lesions. C. Aberhart.—p. 790.
Aid to Bladder Clot Evacuation. W. A. H. Councill and W. A. H. Councill Jr.—p. 792.
Attachment for McCarthy Resectoscope. A. P. Graham.—p. 794.

Laryngoscope, St. Louis

58:1265-1333 (Dec.) 1948. Partial Index

Antihistaminic Drugs in Treatment of Upper Respiratory Tract Infection. J. S. Gordon.—p. 1265.
Use of Furacin in Treatment of Aural Infections. C. C. Douglass. —p. 1274.
Use of Nitrofuran Therapy in External Otitis. J. R. Anderson and C. H. Steele.—p. 1279.
*Effect of Streptomycin on Cochlear and Vestibular Mechanism in Patients Treated Primarily for Renal Tuberculosis. H. H. Sirota and D. H. Jones.—p. 1287.
Constitutional Effects from Use of Sympathomimetic Drugs as Nasal Medication in Children. Report of Case of Privine Toxicity. L. R. House and W. C. Carey.—p. 1294.
Importance of Allergy in Ear, Nose and Throat Conditions. W. C. Spain.—p. 1299.
Removal of Secretions from Nasal Antrum: Part Played by Pressure When Irrigating Nasal Passage with Warm Saline Solution. Physical Hypothesis. J. J. Cantor.—p. 1307.
Control of Post-Tonsillectomy and Post-Adenoidectomy Hemorrhage by Double-Strength Posterior Pituitary Solution: Follow-Up Note. J. W. McLaurin.—p. 1315.

Streptomycin and Cochlear and Vestibular Mechanism.—Sirota and Jones present otologic observations on 16 patients who were treated with streptomycin for renal tuberculosis. All were given 1.8 Gm. of streptomycin daily in divided doses of 0.3 Gm. every four hours. Treatment was continued for 120 days, in all except 3 of the patients, in whom treatment had to be terminated after 66, 76 and 107 days, respectively, because of toxic effects. Symptoms like nausea, tinnitus and dizziness were recorded daily. Audiograms for both bone and air conduction and caloric tests were performed weekly. Follow-up studies were made in some cases up to a year after cessation of treatment. Nausea occurred in 10 of the patients. It varied in severity and did not persist after treatment with streptomycin was stopped. Dizziness or vertigo was the most frequent symptom, occurring in all but 1 of the patients. It usually commenced about three weeks after the onset of treatment and it persisted during a follow-up period of six to eleven months in 13 of the patients. There seems to be no correlation between the streptomycin blood level and the resultant toxic manifestations; the effect seems to be cumulative. Since it has been realized that the tubercle bacillus becomes resistant to streptomycin after a certain length of time, changes have been made in the dosage and the duration. At the authors' clinic patients are now treated with a daily dose of 1 Gm. for a maximum period of 42 days. It is hoped that this will reduce the undesirable side effects.

Medical Annals of District of Columbia, Washington

17:605-654 (Nov.) 1948

Plans of the Public Health Service. L. A. Scheele.—p. 605.
The Premature Infant: Review of 169 Cases Over a Five-Year Period at Children's Hospital. D. J. Judge, A. MacPherson and G. Maksim. —p. 610.
Do's and Don't's in Diagnosis and Treatment of Infertility in the Male. I. A. Pelzman.—p. 614.
*Meningo-Encephalitis Complicating Thoracic Herpes Zoster: Report of Case with Recovery. W. K. Billingsley Jr.—p. 617.

17:655-710 (Dec.) 1948

What the Physician Can Expect from Psychiatry. C. C. Burlingame. —p. 655.
What Is a Neurosis? O. S. English.—p. 661.
Adjustments to Age. W. M. Johnson.—p. 664.
The Uncoöperative Patient—A Therapeutic Challenge. J. D. Frank. —p. 668.

Meningoencephalitis Complicating Herpes Zoster.—Billingsley reports the case of a woman, aged 56, who had symptoms typical of encephalitis about seven days after the appearance of herpes zoster over the right thorax. The patient apparently suffered from encephalitis of the virus type. The sudden onset of delirium and light coma occurred without evidence of any preexisting or predisposing physical condition other than the herpetic rash. Focal neurologic signs were few. There was stiffness of the neck, with positive Brudzinski and Kernig reactions. The central nervous system seemed hardest hit in the conscious sphere or sensorium. This was characteristic in a percentage of the cases of herpetic encephalitis reported in the literature. Spinal fluid findings consisted of an increase in fluid pressure, increase in cells predominantly of the lymphocytic series, an increase in protein content and a moderate increase in spinal fluid sugar. In addition, the spinal fluid gave a zone 2 curve typical of meningoencephalitis.

Military Surgeon, Washington, D. C.

103:419-496 (Dec.) 1948

Presidential Address: The Skilful Leech. E. E. Hume.—p. 419.
Hospitalization in European Theater of Operations, U. S. Army, World War II. J. R. Darnall.—p. 426.
Medical Participation in Exercise Seminole. R. P. Williams and A. F. Robinson.—p. 440.
Volunteer Reserve Component of the Medical Corps, U. S. Navy, in Third Naval District. M. Brooks.—p. 449.
Obstruction of Duodenum in Case of Failure of Rotation of Intestine Associated with Unfused Pancreas and Mesenteric Bands. R. H. Allbee and J. L. Mayfield.—p. 452.
Shock: Clinical Review of Shock in Battle Casualties. D. E. Cassels. —p. 458.
Gall Bladder Drainage. N. B. Jaffe.—p. 464.
*Sanitary Studies of Automatic Washing Machines. S. B. Gilson and H. Bartfeld.—p. 470.

Sanitary Studies of Automatic Washing Machines.—Gilson and Bartfeld state that since the war the New York Port of Embarkation has added to its activities the transportation and interim housing of dependent families of army personnel overseas. At port installations clothing is cleaned either by the port quartermaster laundry or by the dependents themselves, using automatic washing machines. The possible unsanitary nature of a public automatic washing machine is of general interest. Such equipment is commercially available for civilian use in many communities. The study of the public health aspects of such laundry facilities was undertaken. Home type automatic launderies were studied as to bacterial contamination. At the relatively low temperatures of the hot water supply, soap wash and repeated rinsing of clothing did not disinfect the clothing, and removal of the wash left the machine bacterially contaminated for the next user. The high and maintained temperatures of the quartermaster laundry did effectively decrease bacterial flora. Likewise, where similarly high temperatures were maintained in the automatic laundry machines, bacterial flora was equally decreased. In all cases the use of a dilute chlorine solution to wash out a laundry machine effected significant decontamination. It is recommended that laundry machines be equipped with a thermometer at the hot water inlet; also, where any question as to the adequacy of the hot water supply exists, a chlorine rinse should be used to insure bacteriologic decontamination.

Nebraska State Medical Journal, Lincoln

33:401-444 (Dec.) 1948

Surgical Treatment of Lesions of Colon. J. T. Reynolds.—p. 405.
Hematuria. R. B. Henline.—p. 410.
Some Common Dermatoses: Their Diagnosis and Treatment. S. A. M. Johnson.—p. 414.
Is Tonsillectomy Contraindicated During Epidemic of Poliomyelitis? J. C. Davis.—p. 420.
Pleural Effusions: Their Significance and Management. J. F. Gardiner.—p. 425.

New England Journal of Medicine, Boston

239:801-844 (Nov. 25) 1948

*Surgical Treatment of Mitral Stenosis: I. Valvuloplasty. D. E. Harken, L. B. Ellis, P. F. Ware and Leona R. Norman.—p. 801.
Medical Schools and Quality of Medical Care: Survey of Recent Trends. E. R. Weinerman.—p. 810.
Effect of Dicumarol on Erythrocyte Sedimentation Rate in Normal Men. J. L. Palmer and S. M. Gundersen.—p. 818.
Otolaryngology. C. G. Flake.—p. 819.
Epidemoid Carcinoma of Lung, Left Lower Lobe.—p. 834.
Transitional Cell Carcinoma of Sphenoid Sinus.—p. 837.

Surgical Treatment of Mitral Stenosis.—Harken and his associates present the following preliminary classification of patients with mitral stenosis and of the different types of surgery: group A, patients with low fixed cardiac output—mitral valvuloplasty; group B, patients with normal cardiac output—artificial interatrial shunt; group C, patients with uncontrollable tachycardia or with anginal pain—cardiac denervation. Five operations have been performed. Mitral valvuloplasty was performed in 2 patients of group A, with 1 death. Artificial interatrial defects were produced in 2 patients of group B, with survival in each case. Denervation of the heart by bilateral removal of the inferior cervical ganglions and the dorsal first to the fourth in 1 patient of group C was followed by improvement. These cases are reported to indicate the ability of such patients to withstand operation. The evaluation of any long term benefits attributable to these procedures must rest on objective criteria gained from hemodynamic studies carried out before and after operation. Four principles of the surgery of mitral stenosis have been evolved: The operation should be performed without dislocation of the heart from the position of optimum function; the buttonhole opening of the stenotic mitral valve should be approached from the auricular side so that the funnel directs the cutting instrument toward the leaflet margin; surgical enlargement of the stenotic orifice should be so planned that there is a minimum burden from associated regurgitation ("selective insufficiency") and maximum restoration of valvular function ("valvuloplasty"); and in the presence of mitral obstruction or regurgitation, undue acceleration of the heart rate must be prevented. An unsuccessful attempt at producing "selective insufficiency" is presented. It is suggested that tachycardia was an important factor in the disastrous outcome. A case report is presented of the survival of a patient with mitral stenosis following an operation designed to produce "selective insufficiency" and "valvuloplasty" of the mitral valve. The authors suggest the need for more extensive and more effective valvuloplastic technics.

New York State Journal of Medicine, New York

48:2543-2654 (Dec. 1) 1948

Complete Prolapse Following Hysterectomy. M. N. Hyams.—p. 2581.
*Misuse of Insulin in Diabetic Syndrome. H. Schreier and E. L. Sevringhaus.—p. 2587.
Spinal Analgesia and Anesthesia in Obstetrics. H. A. Snell.—p. 2590.
Habitual Abortion. C. T. Javert.—p. 2595.
Topical Anesthesia. F. C. Combes and Rose B. Saperstein.—p. 2599.
Management of Problems Associated with Prolonged Labor. D. E. Reid.—p. 2601.
Present Status of Preservation of Anal Sphincter in Radical Operations for Carcinoma of Rectum and Rectosigmoid. A. O. Wilensky.—p. 2605.
*New Method in Management of Acute Anterior Poliomyelitis. E. Smith, D. J. Graubard, N. Goldstein and W. Bikoff.—p. 2608.
Diethylstilbestrol in Treatment of Idiopathic Repeated Abortion. B. Lapan.—p. 2612.
Inulin Clearance in Altered Endocrine State. J. Weissberg and T. H. McGavack.—p. 2615.
Sodium Morrhuate with Sodium Sulfadiazine in Treatment of Varicose Veins. H. L. Myers.—p. 2619.
Hodgkin's Disease Involving the Nose. H. L. Cahn.—p. 2622.

Misuse of Insulin.—Schreier and Sevringhaus say that in the older age group the use of insulin requires great care. They suggest that if diabetes develops in an obese person he should not be given insulin unless acetonuria coexists with the glycosuria. Weight reduction is paramount in such cases. Obesity is a prediabetic state in such persons. One may well permit the optimal weight to be established by managing the diabetes with a minimal diet without insulin. Out of 120 diabetic patients, weighing over 180 pounds (81.6 Kg.) each, 108 (90 per cent) were treated without insulin by one of the authors. Nine illustrating case histories are presented. The authors stress that the use of insulin in older, obese diabetic persons frequently becomes an easy substitute for education of the patient in the use of an appropriate diet. Consequently, as more food is taken, the insulin is increased because of continued glycosuria. The results include uneconomic use of insulin with possibly dangerous reactions. Obesity and hyperglycemia persist despite the insulin dosage; this probably could have been minimal or the patients could have done without insulin completely.

New Management of Poliomyelitis.—Smith and his associates regard the alleviation of pain and spasm as one of the major problems in the management of acute poliomyelitis. They believe that vasospasm is a defense mechanism of tissue response. When an irritable focus is established in the periphery, the organism reacts by vasospasm and exudate. These usually subside at the time healing is complete. However, if an irritative focus persists, a reflex arc producing pain and spasm is established. This arc may perpetuate itself through the internuncial pool and eventually involve the sympathetic motor neuron cells in the lateral horn. Interruption of the cycle of reflexes is, therefore, the method of choice. The results achieved in cases of trauma with the intravenous administration of procaine hydrochloride have indicated that the symptom complex of pain may be controlled in this way. The treatment described was used in 79 of 159 patients with poliomyelitis. Four patients were treated by the intravenous administration of procaine hydrochloride; 73 were treated with priscol hydrochloride® (2-benzyl-4, 5-imidazoline hydrochloride) and 2 with diethylaminoethanol. Acute pain was relieved in all cases within twenty minutes to eight hours, procaine hydrochloride giving the quickest and diethylaminoethanol the slowest response. Increasing relief of pain was obtained with succeeding administration to the point of complete relief, at which time the patients were discharged or transferred to orthopedic institutions. Although relief of pain and spasm was obtained in all cases, this report must be considered as a preliminary study.

North Carolina Medical Journal, Winston-Salem

9:547-598 (Nov.) 1948

Psychic Disturbances in Children with Chronic Illness. G. A. Watson.—p. 547.
General Remarks on Pott's Fracture. L. D. Baker.—p. 550.
Changes in Gastric *p*H Following Administration of Fruit Juice to Patients with Peptic Ulcer. J. D. Yeagley and D. Cayer.—p. 555.
Present Trends in Laboratory Procedures. J. H. Hamilton.—p. 561.
Fibromyoma of Cervix. B. E. Thomas.—p. 565.
In Vitro Observations on Antibacterial Activity of Aureomycin. M. Meads, Nancy M. Haslam and K. M. Stevens.—p. 568.
Pathogenesis, Diagnosis, and Treatment of Varicose Veins and Varicose Ulcers: Analysis of 200 Cases Treated by Upper Saphenous Ligation. R. P. Miller and T. D. Sparrow.—p. 574.
Present Status of Study of Human Fatigue. A. T. Miller Jr.—p. 580.

Pediatrics, Springfield, Ill.

2:643-762 (Dec.) 1948

Combined Use of Angiocardiography and Cardiac Catheterization in Diagnosis of Congenital Anomalies of Cardiovascular System. A. L. Johnson and D. L. McRae.—p. 643.
Absorption of Oily and Aqueous Preparations of Ester and Alcohol Vitamin A by Normal Children and Children with Various Diseases. Augusta B. McCoord, C. P. Katsampes, F. Lavender and others. —p. 652.
Galactose Studies in Infant with Idiopathic Galactose Intolerance. L. Greenman and J. C. Rathbun.—p. 666.
Multiple Cystic Tuberculosis of Bone. M. B. Kreidberg and D. F. Downing.—p. 673.
Outbreak of Nausea, Vomiting and Diarrhea on Maternity Service; Transmitted to Child Caring Institution and to Private Homes. H. Abramson and H. T. Fuerst.—p. 677.
Congenital Ankyloglossia (Tongue-Tie) Associated with Glossoptosis (Retruded Mandible) and Palatum Fissum (Cleft Palate). H. May and L. T. Chun.—p. 685.
Rheumatic Pneumonitis in Childhood. H. B. Levy, J. D. Coffey and C. E. Anderson Jr.—p. 688.
Juvenile Rheumatoid Arthritis. L. M. Lockie and B. M. Norcross. —p. 694.

Union Médicale du Canada, Montreal

77:1397-1508 (Dec.) 1948

*Extragenital Chorio-Epithelioma and its Relationship to Latent Teratoma of Testicle. J. L. Riopelle.—p. 1399.
Symptomatologic Significance of Left Ventricular Kinetics. R. Heim de Balsac.—p. 1408.
Personal Contribution to Study of Treatment of Rheumatoid Arthritis with Gold Salts. L. Mantha.—p. 1416.
BCG Vaccination with Isolation. A. Guilbeault.—p. 1429.
*Treatment of Chronic Glaucoma with Nicotinic Acid. C. Monfette. —p. 1433.
Complications of Acute Mastoiditis Masked by Penicillin; Surgical Intervention and Recovery. P. Fugère.—p. 1436.
Vitamin D_2 and Old Tuberculin in Keratitis of Tuberculous Nature. J. Boulanger.—p. 1439.
Cirrhosis and Ascites. M. Bélisle.—p. 1442.

Extragenital Chorioma.—Riopelle reports 1 case of extragenital chorioma associated with gynecomastia in a man aged 23. A positive Ascheim-Zondek reaction assisted in the clinical diagnosis. The patient died three weeks after his admission to the hospital. Necropsy established the diagnosis. Death was attributed to hemoperitoneum secondary to the rupture of a metastasis of the liver. The necropsy revealed a small teratoma in the right testicle which was not observed on clinical examination in spite of careful scrutiny. A latent testicular teratoma or a scar considered a vestige of an absorbed teratoma was observed on examination of the testicles in 5 cases of extragenital chorioma in man mentioned in the literature. The author's case is peculiar because it presented an embryonal teratoma with cells resembling those of pure, differentiated chorioma rather than a simple scar or vestiges of an adult teratoma. This observation corroborates Prym's concept of a causal relationship between extragenital chorioma and the testicular lesion. It further suggests that extragenital chorioma in man might be reintegrated in the frame of tumors of the gonads. In the presence of a neoplasm of doubtful origin one should consider the possibility of a small malignant teratoma of the testicle and carry out a careful examination of this organ.

Nicotinic Acid in Chronic Glaucoma.—Monfette treated with nicotinic acid 2 women aged 55 and 56 respectively who had chronic glaucoma. This vasodilator has been employed by Gallois in France for twelve years with satisfactory results in cases of glaucoma in which the intraocular pressure did not exceed 50 mm., particularly in patients with simple chronic glaucoma in the early stage in which the vascular lesions are not yet accentuated. Repeated vasodilator tests with intravenous doses of 2 to 3 mg. of the drug two or three times within one week must precede the treatment. Each test is followed by tonometry every fifteen minutes for one hour; each period of tonometry is preceded by measurements of the central visual acuity. Treatment consisted of 1 mg. of nicotinic acid in a teaspoonful of distilled water, 2 teaspoonfuls daily. In both patients vision was improved from 15/30 to 15/20 and tension was reduced from 26 to 20 in one case and from 25 to 19 in the other. Headache disappeared and so did the clouds before the patients' eyes. Although 2 cases are not sufficient to draw any conclusions, they seem to support Gallois's results.

United States Naval Med. Bulletin, Washington, D. C.

48:823-980 (Nov.-Dec.) 1948. Partial Index

Plastic Repair of Surface Defects of Lower Extremity. O. W. Wickstrom.—p. 823.
Massive Condylomata Acuminata. W. N. New and W. C. Marsh. —p. 831.
Electrodiagnosis in Peripheral Nerve Lesions. S. D. Graham.—p. 838.
Detection of Cancer Cells: Smear Technic. K. P. Knudtson.—p. 843.
Primary Mumps Meningo-Encephalitis: Review of Literature and Report of Case. K. P. Bachman.—p. 854.
*Use of Hyaluronidase. A. T. Henderson, S. L. Wallace and R. E. Faucett.—p. 865.
Toxicity of Local Anesthetics. J. D. Walters.—p. 871.
Acute Appendicitis Developing During Penicillin Therapy for Suppurative Infection: Report of Case. J. R. Weisser and A. T. Wagner. —p. 879.
Acute Appendicitis During Penicillin Therapy for Syphilis: Report of Case. M. L. Gerber.—p. 881.
*Reactions from Penicillin with Case Report of One Fatality. E. E. Barksdale, D. M. Frost and J. J. Nolan.—p. 883.
Delayed Reaction to Penicillin: Report of 4 Cases. J. L. Wells and W. P. L. Myers.—p. 887.
Benign Tumors of the Testis: Report of Case. S. Johnson.—p. 893.
Mumps Orchitis Treated with Reactivated Pooled Plasma: Report of 5 Cases. R. E. Huie Jr.—p. 897.
Glomus Tumor with Report of Case. R. A. Downs Jr.—p. 901.
Epidemic Cerebrospinal Meningitis (Waterhouse-Friderichsen's Syndrome): Report of 2 Successfully Treated Cases and 1 Fatal Case. F. W. Meyer Jr.—p. 907.
Occlusion of Central Retinal Vein: Report of Case Treated with Heparin. R. C. Boyden and H. A. Kettering.—p. 912.

Use of Hyaluronidase.—Henderson and his associates point out that it is frequently necessary, especially in wartime situations, to administer large amounts of fluids parenterally in a short time. After the atomic bomb blasts in Hiroshima and Nagasaki many patients had burns and the vomiting and diarrhea of radiation sickness and required supportive fluid therapy. Experienced medical personnel to administer fluids intravenously to all patients were not available. In such circumstances it would appear to be life saving to provide a technically simple method for the administration of plasma, dextrose and isotonic solution of sodium chloride. Hyaluronidase has recently been shown to accelerate the absorption of fluids given subcutaneously. Isotonic solution of sodium chloride can be given as rapidly as 100 drops per minute, or 400 cc. in an hour. The enzyme hyaluronidase hydrolyzes hyaluronic acid; the latter has been isolated from the viscid ground substance among the cells of the connective tissue. This ground substance acts as a barrier to penetration and the spread of foreign material and fluids in the connective tissue. The hydrolysis of hyaluronic acid by hyaluronidase therefore decreases the viscosity of the ground substance, permitting fluids to spread through the connective tissue, reach a greater capillary bed and be absorbed into the general circulation more readily. The technic of administration is simple; 0.02 mg. of hyaluronidase in solution is injected into the hypodermoclysis set.

Reactions from Penicillin.—According to Barksdale and his associates penicillin is capable of producing two types of reactions: (1) therapeutic shock as manifested by a Herxheimer reaction in syphilis, and (2) an allergic reaction. A Herxheimer-like reaction may also occur in nonsyphilitic diseases due to penicillin-susceptible organisms. Penicillin has an amino-acid-like structure and can act as an allergin just as any other protein. In cases of early syphilis treated with penicillin in a naval hospital, a Herxheimer reaction occurred in approximately 30 per cent of the cases. The occurrence of a Herxheimer reaction in early syphilis, however, is not an indication to discontinue the penicillin, but in late syphilis this reaction may be serious and even fatal. Urticaria is a frequent complication of penicillin therapy, and a mild exfoliative dermatitis is frequently superimposed on urticaria. Penicillin should not be used in fungous infections, because many cases of fungous infections are made worse by it. In 1 patient with fungous infection of the feet and stasis eczema a mild cellulitis later developed, and he was given penicillin. In turn urticaria, exfoliative dermatitis and hemolytic Staphylococcus septicemia developed, and the patient died. The history of this patient illustrates that treatment with penicillin in a previously sensitized patient is an extremely dangerous procedure. In the early days of penicillin therapy it was felt that the reaction rate was practically nil, but this cannot be substantiated now. The over-all reaction rate is approximately 8 to 10 per cent. The majority of these reactions are mild and transitory, but serious reactions can occur.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2:927-968 (Nov. 27) 1948

Pharmacology of Failing Human Heart. J. McMichael.—p. 927.

Procaine Penicillin: Effect of Single Daily Injections. P. F. Jones and R. A. Shooter.—p. 933.

Crystalline Anti-Pernicious-Anemia Factor in Treatment of Two Cases of Tropical Macrocytic Anemia. J. C. Patel.—p. 934.

Inoculation Hepatitis. H. Malmros, O. Wilander and B. Herner.—p. 936.

*Syringe-Transmitted Jaundice: Inquiry and Plea. R. S. Morton.—p. 938.

Interinnomino-Abdominal Operation: Report of Case Subsequently Fitted with Prosthesis. D. Mitchell and J. A. Baird.—p. 940.

Spontaneous Rupture of Muscle as Complication of Rheumatoid Arthritis. G. D. Kersley.—p. 942.

Syringe-Transmitted Jaundice.—The investigation presented by Morton was carried out in a venereal disease clinic where sterilization and intravenous technic were believed to be adequate and yet the incidence of jaundice was high. In boiling the syringes, it was noted that they were not always completely submerged in the boiling water and boiling times varied between ten and thirty minutes. Preparation of the injection material in a gallipot was carried out by a male orderly, using distilled water from an upturned flask. The charged syringe was handed to the medical officer who gave the injection and then returned the syringe to the orderly who washed it out in tap water and placed it in the "dirty bowl." It was observed that at the end of almost every session the number of syringes in the "dirty bowl" did not correspond to the total number of injections given during the session. It could be shown that all patients who contracted jaundice had at least three of their intravenous injections on a day when patients incubating the disease were having similar treatment. Possibilities for transference of hepatitis arise from the re-use of unsterilized syringes, the repeated use of the gallipot without sterilization, the drawing up of water from the "dirty bowl" into used syringes and the inadequate boiling of syringes. The handling by the orderly of both dirty and clean material cannot be overlooked. The author makes recommendations for proper sterilization.

Clinical Science, London

7:109-184 (Dec.) 1948

Desoxycorticosterone-like Activity Induced by Adrenocorticotropin in Man. F. T. G. Prunty, P. H. Forsham and G. W. Thorn.—p. 109.

*Investigation and Diagnosis of Steatorrhea. L. P. R. Fourman, G. Higgins, P. Quelch and others.—p. 121.

Comparison of Estimates of Circulating Red Blood Cell Volume Given by Ashby Marked Red Cell Method and T 1824-Hematocrit Method in Man. D. W. H. Barnes, J. F. Loutit and E. B. Reeve.—p. 135.

Observations on Estimate of Circulating Red Blood Cell Volume in Man Given by T 1824 and Hematocrit, with Special Reference to Uncorrected Dye Loss from Circulation. D. W. H. Barnes, J. F. Loutit and E. B. Reeve.—p. 155.

Capillary Strength Tests in Scurvy and Their Reactions to Vitamin C and Vitamin P Therapy. S. Lazarus, H. N. Munro and G. H. Bell. —p. 175.

Steatorrhea.—Fourman and his associates investigated fat excretion in 6 normal subjects, 4 patients with steatorrhea and 3 other patients. Fecal nitrogen losses were also determined in the normal subjects, and in some of the patients. The authors are of the opinion that balance studies, in which the output of a substance is compared with the intake, must usually be carried out for a period of at least twelve days. Fat excretions over four day collection periods have a coefficient of variation of about 30 per cent. The estimated probable upper normal limit of fat excretion in four days on a 70 Gm. fat diet was 23 Gm. Estimation of the four day excretion of fat is usually adequate for the diagnosis of steatorrhea, but where the effects of therapy are being studied the twelve day period must be used. Pancreatic steatorrhea is distinguished from steatorrhea of intestinal origin by the high fecal nitrogen loss. After treatment with folic acid as well as liver and yeast, fat absorption improved gradually to near normal in 1 patient with tropical sprue; there was no change in fat absorption after several months' folic acid treatment in 2 patients with idiopathic steatorrhea.

Glasgow Medical Journal

29:371-394 (Nov.) 1948

Potential Diabetes: Report of Thirteen Cases. Elizabeth A. Marshall. —p. 371.

*Injury to Brachial Plexus During General Anesthesia: Report of Four Cases. R. N. Sinclair.—p. 378.

Injury to Brachial Plexus During General Anesthesia.—Sinclair says that in a large general hospital during the past twelve months injury to the brachial plexus as a complication of operation under general anesthesia has occurred in 4 patients. In 3 patients the paralysis followed lengthy abdominal operations, all of which necessitated transfusions on the operating table. The transfusions in each case were given into a left antecubital vein, the arm being abducted to a right angle, and in each case the subsequent paralysis was left sided. On the fourth occasion the condition occurred in a patient undergoing radical mastectomy. The arm during the operation was held in extension and hyperabduction at about 135 degrees. The author believes that in these cases simple overstretching of the plexus with resulting ischemia of the nerve fibers was the main cause of damage. It is highly improbable that the plexus can be injured by "nipping" between the clavicle and the first rib. While it is true that when the arm is in a position of extreme abduction and extension the plexus tends to be compressed by the clavicle against the attachment of scalenus medius to the first rib, resulting lesion is caused primarily by tension on the plexus. The profound muscular relaxation associated with general anesthesia for abdominal surgery will favor the development of strain on the nerve cords, due to the loss of protective muscle tone from the musculature of the shoulder girdle. It is tempting to postulate that the use of curare to secure complete relaxation of muscles in 3 of the cases was a causative factor. The author does not accept this view, but prefers to stress the liability of the brachial plexus to injury when the patient is adequately relaxed by any form of general anesthesia.

Journal of Hygiene, London

46:239-348 (Sept.) 1948. **Partial Index**

Inactivation of Hemagglutinins and Infectivity of Influenza and Newcastle Disease Viruses by Heat and by Formalin. C. M. Chu.—p. 247.

*Temporary and Chronic Carriers of Salmonelli Typhi and Salmonella Paratyphi B. T. M. Vogelsang and J. Bøe.—p. 252.

Bacteriologic Interpretation of Vaginal Smears. Nancy Laughton.—p. 262.

Observations upon Bacterial Nucleus. K. A. Bisset.—p. 264.

Study of Coliform Organisms in Melbourne Water Supply and in Animal Feces, with Observations on Their Longevity in Feces and in Soil. Doris A. Bardsley.—p. 269.

Studies in Dynamics of Disinfection. R. C. Jordan and S. E. Jacobs. —p. 280.

Conglutination Phenomenon: IV. Importance of Choice of Complement when Examining Antiserums for Presence of Complement-Fixing or Complement-Absorbing Antibodies. R. R. A. Coombs and N. H. Hole. —p. 296.

Notes on Climate and Morbidity. R. W. Parnell.—p. 311.

Carriers of Typhoid Bacilli.—The studies reported by Vogelsang and Bøe of Bergen, Norway, were made on 417 patients with typhoid and on 1,055 patients with paratyphoid B observed over a period of twenty-eight years. Infections with Salmonella typhi were found to be considerably more serious than infections with Salmonella paratyphi B. The mortality from S. paratyphi B was low in children and young persons, but reached 5 per cent in patients over 30. Infection with S. typhi caused a mortality of 8.5 in children and rose to a rate of 16 per cent at higher ages. The percentage of temporary excreters was approximately the same for the typhoid and paratyphoid B patients—40 per cent were men and 60 per cent were women. The number of temporary carriers rose with the patients' age. Of the temporary carriers, only one tenth discharged the specific germ for more than four weeks after the cessation of the illness. After an interval of three months, it is exceptional for the carrier state to cease spontaneously. This interval may therefore be regarded as the dividing line between the temporary and the chronic carrier state. Of the patients with typhoid 3.3 per cent, and of the patients with paratyphoid B 1.9 per cent became chronic carriers. Thirty-one of them were fecal and only one was a urinary excreter. The chronic carrier state was extremely rare in children and young persons; it increased with age, 12 of the 32 chronic carriers being over 50. Eleven of these 12 were women, 5 being typhoid and 6 paratyphoid B carriers. Cholecystectomy was performed on 14 chronic carriers. In all the cases in which the carrier state had lasted for at least a year, gallstones and chronic cholecystitis were found, and the causal organism was obtained in pure culture from the gallbladder. The operation failed to counteract the carrier state in 1 of the patients.

Journal of Pathology and Bacteriology, Edinburgh

60:157-356 (April) 1948. Partial Index

Incidence of Pathogenic Staphylococci in Throat, with Special Reference to Glandular Fever. A. C. P. Campbell.—p. 157.
Rapid Identification of Proteus. S. D. Elek.—p. 183.
Adamantinoma of Jaw with Pulmonary Metastases. G. E. Waterworth and T. H. Pullar.—p. 193.
Anti-Hemolytic Action of Viridans (Alpha) Variants of Hemolytic Streptococci. A. Isaacs.—p. 199.
Bullet Embolism: Case of Pulmonary Embolism Following Entry of Bullet into Right Ventricle of Heart. D. H. Collins.—p. 205.
Pathogenesis of Glomerulo-Nephritis: Re-Investigation of Auto-Immunisation Hypothesis. J. H. Humphrey.—p. 211.
Immunologic Studies with Group-B Streptococci. I. H. Pattison.—p. 219.
Effect of Castration on Action of Some Barbiturates. G. R. Cameron, G. H. Cooray and S. N. De.—p. 239.
Clotting of Human Citrated Plasma by Gram-Negative Organisms. Elizabeth M. Harper and Nancy S. Conway.—p. 247.
*Anthrax in Laboratory Worker, with Observations on Possible Source of Infection. M. A. Soltys.—p. 253.
Lining of Healed but Persistent Abscess Cavities in Lung with Epithelium of Ciliated Columnar Type. D. M. Pryce.—p. 259.
Large-Cell Small-Acinar Thyroid Tumor of Langhans and Incidence of Related Cell Groups in Human Thyroid. B. Lennox.—p. 295.
Quantitative Description of Fragility of Erythrocyte and Its Application to Study of Acholuric Jaundice. G. Discombe.—p. 315.

Laboratory Anthrax.—Soltys' student became infected during or after a practical class in which he handled fixed and stained anthrax smears. A typical lesion developed on his chin at the site of a cut made during shaving, and virulent anthrax bacilli were isolated from it. The infection was mild and the student recovered. Since this accident suggested that despite fixation and staining one or other of the preparations contained viable organisms, it was decided to collect all anthrax slide preparations from the students in order to check this possibility. It was found that spores of Bacillus anthracis in films on slides may withstand the temperature of the Bunsen flame for 5 to 6 seconds. None of the common stains and methods of staining used in bacteriologic technic destroyed all spores in films on glass slides. Mercuric chloride solution (1 : 1,000) killed the spores of B. anthracis smeared on slides after these had been immersed for 5 minutes. Spores were also destroyed by a saturated solution of potassium permanganate; however, the permanganate rendered the slide unsuitable for further staining. Evidence was obtained that viable spores may escape into the atmosphere if spore suspensions of B. anthracis in saline solution are heated in open containers.

Journal of Tropical Medicine and Hygiene, London

51:221-242 (Nov.) 1948

Is the Gametocyte Production of Plasmodium Vivax Influenced by Elimination of Mosquito Passage? J. Bijlmer and H. Kraan.—p. 222.
Rhodesian Sleeping Sickness in Kenya Colony. R. B. Heisch.—p. 225.
Comparison of Hematologic Results in Europeans and Africans Suffering from Active Malaria. J. I. Roberts.—p. 228.

Lancet, London

2:797-836 (Nov. 20) 1948

Parenthood and Social Change. R. M. Titmuss.—p. 797.
Clinical Assessment of Peripheral Nerve Injuries: Tinel's Test. W. R. Henderson.—p. 801.
*Safety of Intraperitoneal and Intratubal Penicillin. A. Westman.—p. 805.
Antihisan in Perennial Vasomotor Rhinorrhea. T. J. Reid and R. B. Hunter.—p. 806.
*Myanesin in Tetanus. J. A. Torrens, P. M. Edwards and M. W. W. Wood.—p. 807.
Acute Toxic Encephalopathy of Unknown Etiology in 2 Brothers. E. S. Frazer.—p. 809.
Thrombosis of the Abdominal Aorta: Apparently Caused by Pressure from Vertebral Osteophyte. G. E. Pinkerton.—p. 811.

Intraperitoneal and Intratubal Penicillin.—Westman felt that before using penicillin in the fallopian tubes and the pelvic cavity it was necessary to ascertain whether penicillin causes any irritation which might bring about adhesions or other damage that would interfere with the migration of the ovum. In experiments on rabbits penicillin was injected directly into the pelvic cavity. In women penicillin was instilled via the fallopian tubes into the pelvic cavity with the instruments used in salpingography at different times before a laparotomy. Evidence was obtained that penicillin does not cause either toxic or chemical damage interfering with migration of the ovum and that it can be safely used in the local treatment of inflammation in the reproductive organs. This opens up new therapeutic possibilities of combating salpingitis and its sequelae.

Myanesin® in Tetanus.—Torrens and his associates say that the favorable effects obtained with myanesin® (3-ortho-toloxy-1, 2-propanediol) in 2 cases of tetanus by another observer induced them to publish a third case of tetanus in which myanesin® proved of great benefit. The action of myanesin® is similar to that of curare. The patient was a man, aged 62, whose bald head was cut when a glass jar fell from a shelf. A child had played with this jar in a garden, where horse manure had been piled the previous year. Four days later the patient's face began to feel tight, but spasms of pain did not appear for another eleven days. After hospitalization he was first given morphine. When a spinal puncture was to be done, relaxation was necessary and so myanesin® diluted in water was injected intravenously. Since this caused complete relaxation from all spasms, it was decided to continue myanesin® as a therapeutic agent. An initial intramuscular injection of 200,000 units of antitetanus serum was given, and penicillin, 30,000 units, was injected every four hours from May 28 to June 8. Myanesin® was given in 1 Gm. doses two or three times a day for nine days. The toal dose was 22 Gm. (7 Gm. intravenously and 15 Gm. intramuscularly). A few doses of morphine and barbiturates were also given, but these were insignificant. Myanesin® served to control the spasms. The patient was freed from pain for long periods and yet remained fully conscious and able to drink, owing to the relaxation of the masseter muscles. Nursing was made easy.

2:837-876 (Nov. 27) 1948

Carcinogenic and Anticarcinogenic Substances. E. C. Dodds.—p. 837.
*Surgery in Hemophilia: Case of Spinal Subdural Hematoma Producing Paraplegia. F. Schiller, G. Neligan and O. Budtz-Olsen.—p. 842.
Air Infection with Dust Liberated from Clothing. J. P. Duguid and A. T. Wallace.—p. 845.
Resistance to Proguanil (Paludrine) in Mammalian Malaria Parasite (Plasmodium Cynomolgi). F. Hawking and W. L. M. Perry.—p. 850.
Simplified Flocculation Tests for Differential Diagnosis of Jaundice. E. B. Love and C. A. Mawson.—p. 850.
Multiple Abdominal Catastrophes. S. Glaser.—p. 851.
Reducing Substances in Cervical Mucus. R. Milton and B. P. Wiesner. —p. 852.

Surgery in Hemophilia.—Schiller and his associates report a 16 month old boy who had a flaccid paralysis of six days' duration. He came from a hemophilic family. The disorder was diagnosed as a compression of the spinal cord of uncertain origin. Laminectomy was decided on, because decompression seemed the only possible treatment if the child were ever to walk again. The lowest five thoracic and the second lumbar laminas were removed. The dura was blue and tight. When it was opened, clot bulged through the incision, but it nowhere extruded spontaneously, being too solid. In places the clot was up to 15 mm. thick. The cord was severely flattened below the lumbar enlargement, but it assumed its normal shape after the clot had been removed. The paraplegia was partly cured after the operation. Hematorrhachis is one of the rarest complications of hemophilia and is usually fatal if not dealt with surgically. The surgical risk in hemophilia can be greatly diminished by giving small daily blood transfusions, continued irrespective of the hematologic findings until the wound has healed. Pressure on a vital organ presents the greater danger to the hemophilic patient.

Practitioner, London

161:353-436 (Nov.) 1948. Partial Index

Intravenous Anesthesia. W. W. Mushin.—p. 353.
Pre-Anesthetic Medication. W. D. Wylie.—p. 379.
Facial Injuries in Road Accidents. P. Clarkson.—p. 396.
Pruritus in Industry. A. V. Magee.—p. 409.
Current Therapeutics: XI. Modern Treatment of Epilepsy. A. J. M. Butter.—p. 417.

Bibliotek for Læger, Copenhagen

140:25-56 (March-April) 1948

*Acute Nephritis. Study of Its Clinical Aspects Especially with Regard to Prognosis. J. Øster.—p. 25.

Acute Nephritis.—Øster says that acute nephritis, like rheumatic fever, is an *allergic disease which occurs after infection predominantly with hemolytic streptococci and may take a* chronic course. The joint disorders of transient kind in many cases also suggest a disorder related to rheumatic fever. The disease most often occurs in younger persons, which is explained by the frequency of infection with hemolytic streptococci in that age group. Of his 243 cases, representing all forms of acute nephritis, 81.8 per cent were in persons under 25. In 74.1 per cent of the cases infection of the upper respiratory tract preceded the nephritis. The maximum incidence was in the winter. Familial occurrence was seen twice. Three patients (1.2 per cent) died in the acute stage. The further fate of 137 of the 191 patients is known. Follow-up from five to twenty-four years after the acute stage showed that 12 had died, 8 of them from uremia. Eighty-nine and five-tenths per cent were well, and 3 patients had chronic nephritis. Three had orthostatic proteinuria and in 14 the blood pressure was increased but the kidneys were sound. In all but 3 of the patients who had died or had chronic nephritis, insidious onset and protracted course without tendency to recover during hospital treatment were so evident that postinfectious nephritis with sudden onset and regular course is believed to be a distinct entity with good prognosis, clinically and prognostically in definite contrast to the nephritis with insidious start, which from the first tends to become chronic.

Chinese Medical Journal, Shanghai

66:351-408 (July) 1948. Partial Index

Primary Carcinoma of Duodenum: Report of Case. M. H. Hu, C. K. Hsieh and C. H. Feng.—p. 351.
Ritter's Disease: Report of Case Treated with Vitamins and Penicillin with Recovery. J. Chen and T. Y. Shen.—p. 356.
Note on Treatment of Amebic Infection with Brucea Javaniga Seeds. H. J. Smyly.—p. 363.
*Clinical Observations on 687 Cases of Cholera. S. C. Tao, M. O. Woo and W. P. Loh.—p. 377.
Incidence of Syphilis Among Prostitutes and Cabaret Hostesses in Tsingtao. D. Lei.—p. 389.
Study on Typhoid Fever in Children in Kweichow: Analysis of 126 Cases. Y. E. Kao.—p. 391.
Involvement of Nervous System in Mumps. C. W. Wang, K. T. Lee and Y. Chao.—p. 398.
Typhus Fever with Bilateral Gangrene of Feet. P. J. Wang.—p. 401.
Hydatidiform Mole with Premature Child. C. C. Kuo.—p. 403.

Clinical Observations on 687 Cases of Cholera.—Tao and his associates report a study of 687 cases of cholera treated in a Shanghai hospital during an epidemic of cholera in the summer of 1946. The ages of the patients ranged from 3 to 77 years. The onset of the cholera was usually abrupt, and about half of the patients were hospitalized within twelve hours after the onset of the symptoms. Diarrhea, vomiting and oliguria or anuria were the most frequent symptoms. Thirst, dehydration and muscular cramps were also frequently observed. There were 32 deaths, a mortality of 4.7 per cent, which compares favorably with mortality rates in other reports. Collapse caused death in 17 cases and uremia in 8 cases; other causes of death were hyperpyrexia and pneumonia. Treatment consisted chiefly of the intravenous administration of isotonic solution of sodium chloride and of 0.5 per cent solution of sodium bicarbonate in order to counteract dehydration and collapse. Forty-one patients were treated with sulfadiazine, and the results were compared with those in 41 control cases. The general impression was that treatment with sulfadiazine cut short the duration and reduced the severity of vomiting and diarrhea and thus shortened the course of illness. By so doing, it probably also helped to lower the incidence of uremia. Chemotherapy can in no way replace the use of saline infusion necessary for combating dehydration and collapse during the acute stage.

Klinische Wochenschrift, Heidelberg

26:545-576 (Sept. 15) 1948. Partial Index

*Sugar Formation and Protein Catabolism Under Influence of Adrenocortical Hormone. K. Oberdisse and R. Werner.—p. 549.
Action of Strophanthin on Slackening of Cardiac Ventricle. E. Frey.—p. 553.
*Investigations with Radioactive Copper in Rats with Anemia Induced by Diet. G. Schubert, W. Maurer and W. Riezler.—p. 555.
Titrimetric Method for Quantitative Estimation of Capacity of Duodenal Juice to Transform Starch into Sugar. E. Balzer and K. Schuster.—p. 559.
Agglutinins of Spirochetes in Cerebrospinal Fluid in Syphilis of Central Nervous System. G. B. Roemer.—p. 561.

Sugar Formation and Protein Catabolism Under Influence of Adrenocortical Hormone.—Oberdisse and Werner cite observations by other investigators which suggest that the hormone of the adrenal cortex under certain conditions is capable of facilitating the formation of sugar from protein. This raises the question of the advisability of administering the adrenocortical hormone or one of its synthetics in times when protein intake is limited. The adrenocortical hormone has been used in recent years not only for substitutional purposes, but also in other conditions. The authors decided to investigate whether the administration of adrenocortical hormone would result in an increased elimination of nitrogen in healthy human subjects. Young persons were given a diet consisting of large quantities of carbohydrates and fat and which contained only 1.5 Gm. of protein nitrogen. The caloric excess was 206 per cent of the basal metabolic rate. In the course of eight to eleven days with this diet the nitrogen elimination averaged 3.2 Gm. This corresponded to a catabolic quota of 0.046 Gm. of nitrogen per kilogram of body weight. This elimination of nitrogen did not increase under the influence of desoxycorticosterone acetate. There was no indication that in persons who received plenty of carbohydrates the administration of desoxycorticosterone resulted *in the formation of sugar from proteins* and likewise in an increased breakdown of proteins, as had been observed in starving experimental animals under the influence of cortical hormone. There was always a decrease in the elimination of nitrogen from 3.2 to 2 Gm. on the average; this is believed to be due to reduced urinary output, which is indicated also by increase in body weight.

Radioactive Copper in Studies on Anemic Rats.—Schubert and his associates say that American investigators demonstrated in 1929 that the trace element copper has an activating effect on iron in rats in which anemia has been experimentally produced by feeding with cows' milk. In order to clarify the metabolic chemistry involved the authors decided to investigate this problem with the aid of radioactive copper (C^{64}). It was found that in rats made anemic by being fed exclusively with cows' milk the radioactive copper content of the blood plasma is only about half as high as in controls. This is believed to be due to the increased linkage tenacity of the endogenic copper ions resulting from a reduced catalytic activity of the blood. The liver shows no increase in the copper exchange, but in the bone marrow and the kidney the exchange rate of copper is increased. The radioactive copper content of the blood cells of the anemic animals, in contradistinction to that of the controls, likewise remains uninfluenced.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

92:3485-3596 (Oct. 30) 1948. Partial Index

*Hereditary Clinodactyly. L. S. Wildervanck.—p. 3491.
Two New Reflexes. F. Grewel.—p. 3504.
Noise Deafness in Aviators. W. J. Pothoven.—p. 3506.
*Clinical and Endocrinologic Observations in Patients with Metastases from Mammary Carcinoma Treated with Testosterone Propionate. H. Pelser, E. Dingemanse, E. G. Godfried and J. Groen.—p. 3511.

Hereditary Clinodactyly.—Wildervanck presents observations on 2 families in which clinodactyly was hereditary. There was lateral deviation in a radial direction of the little fingers and in some members of the first and other fingers as well. The deviation is the result of slanting of the articular surfaces of the mesophalanges; at the same time the phalanges are shorter than normal (brachyphalangy). In one of the two family groups 65 of 124 members showed the anomaly, and in the second family group 28 of 43 showed it. The anomaly is irregularly dominant and the possibility is considered that more than one gene with identical effect may cause the anomaly. In a third family camptodactylia and clinodactyly were evident.

Metastases of Mammary Carcinoma Following Treatment with Testosterone Propionate.—Pelser and his associates present observations on 6 patients with metastases from mammary carcinoma who were treated with large doses of testosterone propionate. In 4 cases the treatment was combined with surgical or roentgenologic castration. In one case remarkable improvement was observed. The 5 remaining patients died within half a year after treatment. Undesirable secondary effects in 3 cases necessitated discontinuation of treatment with testosterone propionate. In 2 patients the excretion of estrogenic substances increased under the influence of the treatment; in 2 others a decrease was observed. The total excretion of 17-ketosteroids increased as a result of the treatment. Of the testosterone propionate given about 40 per cent was found in the urine.

Nordisk Medicin, Stockholm

40:1857-1912 (Oct. 15) 1948

Hypertension in Pregnancy. Clinical Picture, Prognosis and Therapy. L. Werkö.—p. 1857.
*Menstruation in Thyrotoxicosis. O. Riisfeldt.—p. 1864.
Circulation in Pregnancy. L. Werkö, H. Bucht, H. Lagerlöf and A. Holmgren.—p. 1868.
Legally Induced Abortion. Methods and Complications in Women's Clinic, Sahlgrenska Sjukhus, 1942-1947. N. Svanberb.—p. 1870.
Fothergill's Operation for Prolapse of Uterus. A. H. I. Jakobsen.—p. 1874.
Formation of Postoperative Adhesions on Peritoneal Application of Chemotherapy. P. Bergman and K. Bergquist.—p. 1877.
Fetal and Neonatal Mortality and Birth Weight of Children Born to Prediabetic Mothers. Olga Imerslund.—p. 1880.
Determination of Basal Body Temperature as Aid in Insemination. B. von Friesen.—p. 1882.
Induced Labor by Means of Bougie and Puncture of Amniotic Sac. K. M. Andersen.—p. 1884.
Ruptured Ovarian Pregnancy after Earlier Salpingectomy on Same Side. O. Riisfeldt.—p. 1885.
Interstitial Pregnancy. K. Kulseng-Hansen.—p. 1887.
Prolapse of Female Urethra. G. Ahltorp.—p. 1889.

Menstruation in Thyrotoxicosis.—Riisfeldt found menstrual disturbances in 28.8 per cent of 340 sexually mature women with goiter. Only 3 out of 31 patients with nontoxic goiter had menstrual anomalies. Hypomenorrhea occurred in 44 of 87 patients with thyrotoxicosis, oligomenorrhea in 27 and amenorrhea in 16. Anomalies in menstruation are often an early sign of thyrotoxicosis and were more frequent in women over 30; in 2 cases hypomenorrhea was the first symptom. The increased thyroid activity in hyperthyroidism exerts an inhibitory effect, directly or indirectly, on the gonads. Some patients with irregular menstruation before the onset of thyrotoxicosis became regular during the thyrotoxicosis and continued regular after operative treatment and disappearance of the thyrotoxic symptoms.

40:1913-1968 (Oct. 22) 1948. Partial Index

*General Adaptation Syndrome and Diseases of Adaptation. H. Selye.—p. 1913.
Erysipeloids, Especially in Handlers of Fish. S. Lundgerg.—p. 1924.
Seasonal Variations in Impetigo Contagiosa. E. Sylvest.—p. 1926.
Stevens-Johnson Syndrome (Ectodermosis Erosiva Pluriorificialis). J. Ström.—p. 1929.
Sodium Penicillin in Gonorrhea. D. Pedersen.—p. 1934.
Histamine Infusion in Chronic Urticaria. M. Bohman.—p. 1939.
Wassermann Reaction Carried Out by Different Methods. P. Krag and T. M. Vogelsang.—p. 1940.

General Adaptation Syndrome and Diseases of Adaptation.—A description and theoretic interpretation of the general adaptation syndrome are given. It is defined as the sum of all the nonspecific reactions which follow long-continued exposure to stress and is characterized by morphologic and functional changes, the most important being enlargement of the adrenal cortex with increased secretion of corticoid hormones, thymus involution and various changes in metabolism and resistance. It appears in three stages: (1) the alarm reaction, the sum of all nonspecific reactions produced by sudden exposure to stimuli to which the organism is not quantitatively or qualitatively adapted; (2) the resistance stage, the sum of all the nonspecific reactions produced by long-continued exposure to stimuli to which the organism has become adapted, and (3) the stage of exhaustion, the sum of all the nonspecific stimuli to which adaptation has been acquired which can no longer be maintained. Selye states that if the conception of diseases of adaptation proves to be correct the conclusion must be that endocrine disturbances play a large part in internal medicine. Some of the commonest diseases in man seem to be related to failure of the mechanism of adaptation. Recent investigations indicate that diseases such as hypertension, nephrosclerosis and "rheumatic disorders" may appear as by-products of the endocrine reaction in the general adaptation syndrome. Diseases of hypertension, periarteritis nodosa, nephritis, the Waterhouse-Friderichsen syndrome, eclampsia, appendicitis, acute tonsillitis, Cushing's syndrome, secondary shock, gastrointestinal ulcerations, Addison's and Simmond's diseases and primary renal disorders are among the disorders assumed to be disease of adaptation.

Revista de Sociedad de Ped. del Litoral, Rosario

13:3-38 (Jan.-April) 1948. Partial Index

*Acute Poisoning and Cardiac Disturbances Caused by Scorpion's Bite. J. Celoria and M. Sloer.—p. 3.

Acute Poisoning and Cardiac Disorders from Scorpion's Bite.—Bothriurus vittatus is the common type of scorpion in the littoral zones of Argentina. The bite of this type of scorpion causes subacute or acute symptoms in adults, and acute symptoms and often a fatal outcome in children. Adults exhibit severe headache, dizziness, nausea, numbness of the extremities and of the tongue. The symptoms subside as a rule in the course of the same day without any treatment. The author reports a girl 6 years of age bitten by a scorpion. She was brought to the hospital four hours later complaining of dizziness, numbness of the tongue and of the extremities, nausea, vomiting and headache. She had moderate dyspnea and cyanosis. Electrocardiographs demonstrated tachycardia, a nodal rhythm and bigeminal and trigeminal extrasystoles. The patient became unconscious with general convulsions, trismus, leftward deviation of the eyes, rhythmic spasms of the arms and frequent vomiting. The treatment consisted of administration of antiophidic serum, nikethamide, oxygen, dextrose solution and an enema containing 1 Gm. of chloral hydrate. The patient recovered. The author directs attention to this type of scorpion venom as a brain and myocardium excitant.

Semaine des Hôpitaux de Paris

24:2891-2920 (Nov. 30) 1948

Psychoses of Postpartum; Cytohormonal Study. J. Delay, G. Boittelle and A. Corteel.—p. 2891.
*Efficacy of Vaccination with BCG in Nurses of Saint Joseph Hospital; Criticism of Abusive Indications. J. Génévrier and A. C. Maclouf.—p. 2901.
Neuropsychopathic Abdominal Perivisceritis. R. Benon.—p. 2905.

BCG Vaccination of Nurses.—Génévrier and Maclouf studied 77 student nurses at the Saint Joseph Hospital in Paris during the period 1934 to 1942. Thirty-one of them continued to have negative reactions and left the nurses school before the appearance of the cutaneous allergy. The reactions of the remaining 46 turned positive; in 13 (17 per cent) this turning was associated with an incident of tuberculous type. Two (2.6 per cent) student nurses had tuberculosis, 1 of them Pott's disease and 1 tuberculous osteoarthritis. Eight (10.4 per cent) student nurses presented benign manifestations. There was an intermediary group of 3 (3.8 per cent) with serofibrinous pleurisy. In contrast to that the tuberculous morbidity was zero in 55 student nurses who were vaccinated with BCG by cutaneous scarification during the period 1943 to 1947. Thus the BCG vaccination prevented all simultaneous or secondary incidents of the turning and made it possible for the nurses who had no reaction to serve prolonged terms in the tuberculous wards. Comparison of these two groups of anergic student nurses at the same hospital proves the efficacy of the BCG vaccination. The subcutaneous injection of BCG may, however, awake a latent lesion in a definitely allergic person. Any allergic person should therefore be strictly excluded from vaccination. The systematic vaccination of the entire anergic population of France is not feasible, but in the well known centers of the disease in certain counties and towns all persons should be vaccinated after birth whether or not they are the offspring of a family of tuberculous persons.

Book Notices

Polio and Its Problems. By Roland H. Berg. With a foreword by Basil O'Connor, President, the National Foundation for Infantile Paralysis, Inc. Cloth. Price, $3. Pp. 174, with 24 illustrations. J. B. Lippincott Co., 227-231 S. 6th St., Philadelphia 5, 1948.

The author, a professional writer not of the medical profession, has undertaken to write a biography of the disease. In this task he has succeeded with a measure of scientific and historical accuracy which reflects due attention to source material. The opening chapter describes the epidemic of 1916 from the point of view of the bewildered layman in those troubled times. If contemporary newspaper accounts, which are freely quoted, offer a true picture of the public's concept of poliomyelitis a generation ago, then indeed we have come a long way on the road to understanding, and it is highly appropriate that the landmarks be listed and the direction of future progress mapped.

Succeeding chapters deal with early investigators, from Heine, Medin and Wickman up to Landsteiner, Kling and Flexner; with the experimental transmission of poliomyelitis to laboratory animals; with successive attempts to check the disease by nasal spray or prophylactic inoculation of attenuated virus material. The author goes on to describe the search for an effective chemotherapeutic agent and the methods used by epidemiologists in their efforts to explain the mode of transmission. Some of the newer tools of research are mentioned, as well as recent progress in the treatment of bulbar poliomyelitis and in applications of physical therapy. A number of the more controversial hypotheses still under active investigation are sketched in broad lines. The contribution of Sister Kenny is judiciously and fairly evaluated. One chapter is devoted to the case history of F. D. Roosevelt, another to the story of the National Foundation for Infantile Paralysis, how it arose and what it strives to accomplish. On the whole, a summary of what is known of poliomyelitis is set forth with reasonably balanced emphasis and in language readily understandable to a layman. If at times the author has let his zeal for simplification carry him close to the limit of factual terrain, there is ample justification in the complexity of the true picture.

The book is aimed primarily at nonmedical readers. Indeed, the physician may well blush at seeing himself placed on so lofty a pedestal, repeatedly characterized as a fearless fighter of disease, a detective in white. Recurrent reference to poliomyelitis as "the Crippler" becomes as tiresome as does the overworked metaphor of militancy in the domain of scientific research, the compelling urge of which is actually closer to that of book collecting than to shooting war. Is it really necessary, one cannot help asking, for the public to have its science prose flavored with such overpowering condiments as modern journalese has brought into all too common use? Fortunately, the final chapter on "The Sum of Our Knowledge," the best in the whole volume, is expressed in moderate terms which go far to dispel the pungent after-taste of the main course. On the whole, in spite of a number of typographic mishaps and egregious grammatical errors, the volume can be recommended as a readable and substantially accurate account of the effort, still largely unrealized, to probe the mysteries of a disease which, if not so common as many others in its overt forms, nevertheless remains indisputably a subject of wide public concern.

In a foreword written by Basil O'Connor, president of the National Foundation for Infantile Paralysis, credit is properly assigned to the American public for its generous contributions, made over a period of years, which have not only helped vastly to carry the burden of medical care of poliomyelitis patients but, what is even more perspicacious, have rendered possible an intensive research program in a field of notable difficulty.

Advances in Pediatrics. Volume III. Editorial Board: S. Z. Levine, Allan M. Butler, L. Emmett Holt Jr. and A. Ashley Weech. Cloth. Price, $7.50. Pp. 363, with illustrations. Interscience Publishers, Inc., 215 Fourth Ave., New York 3, 1948.

This volume by eight writers consists of personalized monographs; each one deals with advances in a particular field in which the author has had considerable experience and achieved recognition for outstanding work. The various subjects include: "The Effects of Birth Processes and Obstetric Procedures upon the Newborn Infant," by Clement A. Smith, Boston; "Retrolental Fibroplasia," by T. L. Terry, Boston; "Emotions and Symptoms in Pediatric Practice," by Milton J. E. Senn, New York; "Therapeutic Agents in the Treatment of Epileptiform Seizures," by William G. Lennox, Boston; "Viral Hepatitis," by Joseph Stokes Jr., Philadelphia; "Abnormalities and Variations of Sexual Development During Childhood and Adolescence," by Lawson Wilkins, Baltimore; "Puberty and Adolescence; Psychologic Considerations," by Hilde Bruch, New York, and "The Osteochondroses," by Beckett Howorth of New York. Just as in the first two volumes the third is outstanding in variety and authenticity of subjects covered.

Each subject is presented in a simple, complete and elucidating manner. The subject of adolescence, which is always a problem to every physician, is admirably considered and very timely. In "Viral Hepatitis" the value of diet and hepatic function tests together with other pertinent information is clearly and accurately presented. The reproductions of roentgenograms in the various ostrochondroses are good. Each subject is brought up to date in a thorough and interesting manner.

The printing, paper and construction of the book are excellent. Books such as this should be in the library of every physician who wants to keep abreast with the latest and the best in medicine.

Health Education: A Guide for Teachers and a Text for Teacher Education. Edited by Charles C. Wilson, M.D., Professor of Education and Public Health, Yale University, New Haven, Connecticut. Revision Committee: Thurman B. Rice, M.D., Bernice Moss, Ed.D., W. W. Bauer, M.D. Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association with the cooperation of contributors and consultants. Fourth edition. Cloth. Price, $3. Pp. 413, with illustrations. National Education Association of the United States, 1201 16th St., N.W., Washington 6, D. C., 1948.

This book is representative of medical and educational thinking on the subject of health education. The committee of five members from each profession, appointed by their national organizations, has brought together accurate scientific information and sound pedagogic principles.

The 1948 version of this guidebook on health education is actually a completely rewritten fourth edition of the reports which appeared in 1924, 1930 and 1941. In addition to the planning and work of the Joint Committee, over a hundred contributors and consultants drawn from the professions of education and medicine and from the field of public health participated in the development of the manuscript. Dr. Charles C. Wilson, editor of the book, directed the project with the aid of a revision committee.

The book offers the best present day point of view concerning the philosophy, methods and content of health education. The nation's health needs are defined, especially as they relate to children, and emphasis is placed on community cooperation as a means of solving these problems. Methods of making the health services furnished by physicians and nurses worthwhile educational experiences and of improving the health behavior of children through healthful living at school are discussed at length. Detailed suggestions are made in respect to the organization and administration of health education in the elementary and secondary schools, and for college and adult groups. Ways of using motion pictures, film strips, exhibits, radio and other audio-visual aids to vitalize health teaching are described and methods of locating appropriate and authentic resources discussed. Methods of measuring results obtained and progress made are suggested and a number of reports of learning experiences in health at the various grade levels are outlined.

The editor and the revision committee have succeeded in combining a worth while factual presentation with an interesting style. It is easy and pleasant to read and the photographs are excellent. Tables, charts and other illustrative material further encourage the reader.

While the book will be of greatest value as a guide for teachers in service and a text for teacher education, it should be required reading for school physicians, administrators and nurses. It is highly recommended to any physician who wishes to acquaint himself with modern health education practices, and as a valuable edition to the library of the thousands of physicians who act as personal medical adviser to school children and their families.

Drug Research and Development. Edited by Austin Smith, Secretary, Council on Pharmacy and Chemistry, American Medical Association, Chicago, and Arthur D. Herrick. Cloth. Price, $10. Pp. 596. Revere Publishing Co., 15 Trinity Place, New York 6, 1948.

Each of the authors provides at least one chapter dealing with that phase of the general topic which, through actual experience, he is eminently prepared to present. The thorough scope of the work can best be presented through the chapter headings which follow:

The Modern Drug Formula
Chemistry of the Formula
Pharmacology of the Formula
Laboratory Research
Development of Biologicals
Clinical Testing
Development of Facilities and Controls
Labels and Labeling
Packaging and Storage
The Product and the Patent Law
Drug Trade-marks and Labels
Drug Regulation
New Drug Applications
Biologic Control Regulations
Drug Certification
Council Acceptance
Product Development, Promotion and Marketing
Advertising
"Detailing" the Physician
Professional Acceptance
Retail Price Maintenance

As the chapter heads indicate, every possible phase of the subject has been covered, making the book the first of its kind, and one to be considered by the drug manufacturer and distributor, the research and laboratory worker, the physician and pharmacist, the advertising counsel and sales representative, each of whom, as the editors point out, is a participant in the development of drugs and drug therapy. This compilation is an outstanding contribution to the drug industry, well written and comprehensive in its scope.

The book is not just one for a manufacturer's library; it should be in the hands of at least each department head who has any part in the development of new drugs, and preferably available to others in the department, that each may understand how his contribution is integrated with the whole. It cannot help but be valuable even for the well established manufacturer who has already developed many new drugs, and it will, undoubtedly, save many dollars, hours and setbacks for the one who is just embarking on such a program. If this volume had been available several years ago, a number of most unfortunate "accidents" would, undoubtedly, never have occurred, and following its pattern today will certainly prevent many additional "mistakes." In addition, the book should be used by every pharmacy college now giving specialized instruction in manufacturing, for these are the men who will go into industry and take an important part in many phases of drug research and development.

Vers la médecine sociale. Par René Sand, professeur de médecine sociale à l'Université de Bruxelles, Brussels. Paper. Pp. 671. J. B. Baillière et fils, 19 Rue Hautefeuille, Paris, 6ᵉ; Desoer, 21 Rue Sainte-Véronique, Liège, 1948.

Dr. Sand presents in this volume a cyclopedic review of developments which reflect the recognition of social factors in health and disease. Well documented sections deal separately, on a worldwide basis, with the growth of medicine as a profession, the history of hospitals, individual hygiene and social (public) hygiene, industrial medicine, public welfare and various branches of the social sciences in relation to medicine and health. A final section discusses the coming of social medicine and presents an integration and evaluation of the full range of scientific and cultural developments which are making this concept the basis of medical practice for the future. Dr. Sand sees the true scope of social medicine as encompassing the concept of health for all, including preventive, therapeutic and reparative care, and using the combined resources of physicians, sanitarians and other professional groups in medicine, biostatisticians, psychologists, welfare workers and sociologists.

The author accepts the democratic concept of the individual, to be considered in a social context. Rather summary reference is made to developments in compulsory health insurance. The author, however, grapples with the problems of economics in medical practice on philosophic and medical grounds and concludes that group practice and compulsory insurance with capitation payments are the functional solutions.

The volume includes a five page table of contents, a six page general bibliography, a twenty-nine page index of names and a well organized twenty-five page subject index, as well as numerous footnote references to pertinent facts in the text.

Handbook of Orthopaedic Surgery. By Afred Rives Shands, Jr., B.A., M.D., Medical Director of the Alfred I. duPont Institute of the Nemours Foundation, Wilmington, Del. In collaboration with Richard Beverly Raney, B.A., M.D., Associate in Orthopaedic Surgery, Duke University School of Medicine, Durham, N. C. Third editon. Cloth. Price, $6. Pp. 574, with 159 illustrations by Jack Bonacker Wilson. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1948.

The author in the preface to the first edition made the following statement, "The fundamental facts and principles of orthopedic surgery are presented as concisely as possible and in sufficient detail to convey a well rounded knowledge of the subject."

This is definitely true for the third edition which contains twenty-four chapters and a most excellent bibliography.

The line drawings and roentgen photographs are adequate and descriptive.

This edition did not contain a description of cohesive-adhesive bandaging for clubfoot. It failed to mention the Frejkas pillow splint for treatment of congenital hip dislocation in infants. It did not indicate the diagnostic lines on the roentgenogram for determining these congenital hip dislocations. Polyostotic fibrous dysplasia was not discussed, and it should have been described under "Affections of Adult Bone." More emphasis would have been valuable on the physical therapeutic technic of muscle training and stretching in "Anterior Poliomyelitis."

This is still the best American handbook of the specialty available for students and general practitioners. It is well written, well presented and highly recommended.

Plaster of Paris Technic. By Edwin O. Geckeler, M.D., Professor of Orthopaedic Surgery, and Chief of the Fracture Service, Hahnemann Medical College and Hospital, Philadelphia. Second edition. Cloth. Price, $3. Pp. 220, with 236 illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves, Baltimore 2, 1948.

In preparing this edition the author has incorporated suggestions offered by orthopedic and traumatic surgeons. Many illustrations have been added which enhance the value of this book.

The author is a devotee of plaster of paris. He believes in individualization of the patient.

A large proportion of orthopedic conditions must be immobilized with plaster. The inadequacy of wood or metal splints for injuries except emergencies is mentioned. Plaster technic is by no means standardized, and application of a splint or cast should be adapted to the individual; thus there is opportunity for originality and improvement in technic.

Curriculums for medical students provide little instruction in this plaster of paris technic. The beginner often must learn through his own resources. In many instances the surgeon himself does not apply the plaster to his patients, but assigns this part of the treatment to the intern. There appears to be a popular idea that the application of plaster means just so much labor, and that it requires time which could be spent otherwise to greater advantage.

Orthopedic technic and the reduction of fractures have been intentionally omitted from this book. To learn plaster technic the reader not only is advised to follow the instructions carefully, but also should practice extensively on actual patients.

The material covered includes general technic in the application of plaster of paris. Errors and difficulties are enumerated. The author discusses and illustrates the technic as applied to various parts of the body, such as the spine, shoulder, upper limb, pelvis and lower limb. He also discusses the use of plaster of paris in war surgery, compound fractures, osteomyelitis, injury and inflammation of soft tissues and in the care of burns.

Diabetic Manual for the Doctor and Patient. By Elliott P. Joslin, M.D., Sc.D., Medical Director, George F. Baker Clinic at New England Deaconess Hospital, Boston. Eighth edition. Cloth. Price, $2.50. Pp. 260, with 51 illustrations. Lea & Febiger, 600 S. Washington Square, Philadelphia 6, 1948.

This manual, now in its eighth edition is no doubt the leader in its field, representing as it does the writings, the views and the experiences of one of America's greatest investigators and practitioners in this field. The presentation is simple and accurate and possesses the necessary journalistic qualities to make it intensely readable. Among a dozen or more books available in the field, this one may be recommended without reservation.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT *BE NOTICED.* EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

AIR POLLUTION IN DONORA

To the Editor:—*Life* magazine, Nov. 15, 1948, states "Death Over Donora . . . Doctors went into action, one of them rushing down a street giving adrenalin injections to choking citizens who came out of their homes through the smog, pleading to be next. Within 48 hours, 19 people were dead, more than 400 sick." What is the most helpful treatment for persons acutely ill because of air pollution? Here in Los Angeles our main problem used to be water, but, as you may have heard, recently we have had some trouble with air.

Clarence W. Olsen, M.D., Beverly Hills, Calif.

ANSWER.—Much speculation has entered the appraisals of happenings at Donora. At the time of the preparation of this reply, no official report is known to have been made. On this account some conjecture may influence this reply. It appears likely that the Donora disaster foremostly resulted from the coexistence of a number of meteorologic conditions that might have been anticipated as of possible occurrence and in the possible absence of any unusual happenings at the metal plant, widely condemned. The simultaneous occurrence of a dense fog, limited air movement, the absence of upward movement of atmospheres, peculiar air temperature situations, together with the presence, in these low-hanging, little moving clouds, of the usual output of factory gases, possibly may fully account for the ensuing events. To a lesser degree, these fortuitous meteorologic situations take place every year in many industrial cities and particularly where the terrain is characterized by high hills. It may be assumed that mass hysteria pervaded the population and that the total number of genuine cases is somewhat lower than reported. It may be assumed that both sulfur dioxide and trioxide were present. These irritant gases in the absence of water droplets ordinarily do not penetrate deep into the respiratory tract. When water droplets are present and the mentioned irritant gases enter the droplets, they then may be expected more readily to enter the lungs and to induce deeper seated injury. To some extent, pulmonary edema may arise. Further, with or without pulmonary edema, some bronchial spasm may occur. The resulting symptom complex may be similar. For persons with asthma on an allergic basis, it does not necessarily follow that the mentioned irritants would induce asthmatic attacks. On the other hand, it may not be necessary to assume preexisting allergic asthma as essential to spasmodic muscular contractions. In any event, the prevailing state of panic heightened the evil occurrences. In the case of aged persons with presumed imperfect cardiovascular systems, pulmonary edema in particular may be regarded as likely to have imposed increased cardiac burdens. If perfect therapeutic facilities might have existed, the use of oxygen under pressure, associated with complete rest, probably would have afforded the best treatment. Ephedrine and epinephrine administered either subcutaneously or through inhalation undoubtedly were of value both psychologically and factually notably for those in whom muscular spasms along the respiratory tract occurred. Other bronchodilators, such as aminophylline, would have proved serviceable, especially in the early involvement stages. Since aminophylline is best introduced intravenously its use is obviously circumscribed in mass emergencies. If any such catastrophe might have been anticipated, possibly the best single drug for self administration would be epinephrine administered by hand atomizers. Definitely it is not intimated that any such self medication would be universally efficacious. This query specifically seeks "the most helpful treatment for persons acutely ill because of air pollution." Manifestly, any proper answer starts with "air pollution by what?" Until reply may be provided, the best single step is the provision of oxygen and the avoidance of exertion.

VISUAL ILLUMINATION

To the Editor:—Please give information on the optimum illumination for maximum visual efficiency. Morton Arnold, M.D., Willimantic, Conn.

ANSWER.—Optimum illumination for maximum visual efficiency is actually difficult to determine. In general it depends on a number of variables, including: 1. The illumination itself: the source varies, such as sunlight, electricity, gas light (now neon, etc.), kerosene and fireside light, and is measured and rated in "foot-candle." 2. The object viewed: this depends on (*a*) form: the letters T, L and O are easy to read in comparison with Z, G and N; form is determined better by black or white than it is by any color contrast; (*b*) color: red is seen farther than green; yellow "contrasts" better with blue than it does with red; "continental" red gives a marvelous stereoscopic effect when crossed by narrow black lines; etc.; (*c*) dimension: three-dimensional objects develop greater visual efficiency than do two dimensional "flat" objects. 3. The eye itself as the receiving apparatus. You cannot get a good picture with a poor, insensitive film and you cannot get perfect visibility with an imperfect retina. The media of the eye must transmit light correctly: it must be clear and it must be uniform, not varying in density here and there, as in the cornea, lens and vitreous humor; fine closely placed opacities interfere most, and disseminated diffuse minute opacities make more trouble than do larger ones, e. g., a millimeter-sized posterior polar cataract. 4. The psychology of vision, about which we know so little, may well be a factor influencing efficiency, especially when illumination varies.

On the practical side, probably nineteen twentieths of our distress comes from what happens when we look at objects within 2 feet (61 cm.) of our eyes rather than what happens when we look at objects at a greater distance (as 3 feet [91.4 cm.] or 20 feet [6.1 meters] or 100 feet [30.5 meters]). Near vision makes much greater demands. One who has two-thirds vision for distance objects seldom wishes or needs glasses, although they improve vision by three or four lines. For groups working in library, office and schoolroom, the writer holds that uniform, but rather weak, light, which just enables one to miss waste baskets, spittoons, etc., is enough, along with a good, goose neck, $3 desk light and 100 to 150 watt bulbs.

Indirect, reflected lighting requires too much current, generates too much heat and is unnecessary. In general, it seems to be on the way out. For room and space lighting the type secured by multiple reflectors about each small unit may meet great acceptance in the immediate future

GENETIC ASPECTS OF SCHIZOPHRENIA

To the Editor:—Is dementia precox inherited? A patient has a half-sister in whom dementia precox, catatonic type, developed at age 16. They had the same father and their mothers were twin sisters, but it is not known whether they were identical or fraternal twins. The patient is anxious to have children, but is hesitant. Assuming that the husband's family history is negative and that the half-sister's case is the only one in the wife's family, is it advisable for this couple to have children? What are the chances of the offspring's developing insanity or other nervous system disease as compared to parents with "normal" backgrounds? Does it make any difference if the mothers were fraternal or identical twins?

M.D., Washington, D. C.

ANSWER.—The genetic aspects of schizophrenia (dementia praecox) are controversial. What evidence has been advanced may be summarized by the following:

There is no inheritance of fully developed characters or anomalies but only a transmission of predispositions, i. e., specific potential responses to the environment (Gates, R. R.: Human Genetics, New York, the Macmillan Company., 1946). Statistical data have been presented which indicate that schizophrenia (dementia praecox) occurs more frequently in families which include a known case of schizophrenia than it does in the general population (Kallman, F. J.: The Genetic Theory of Schizophrenia, *Am. J. Psychiat.* **103**:3, 1946). The average expectancy of schizophrenia in the general population is 0.85 per cent. Children of one schizophrenic parent have a 16.4 per cent probability of getting the disease; the grandchildren 4.3 per cent and the nieces and nephews 3.9 per cent. The schizophrenic rate of parents of schizophrenic persons approximates 10 per cent. The expectancy for brothers and sisters as well as for the fraternal twin partners of schizophrenic persons is around 14 per cent; for half-siblings it is 7.6 per cent and for step-siblings 1.8 per cent. The identical twin partners of schizophrenic persons show an expectancy rate of 85.8 per cent (Kallman, F. J.: Modern Concepts of Genetics in Relation to Mental Health and Abnormal Personality Development. *Psychiatric Quart.* **21**:535-553 [Oct.] 1947).

The clinical expression of the disease in these "carriers" requires, in addition, the provocative influence of all those life situations generally recognized to be psychopathologically conducive to the development of schizophrenia. Evidence that the genetic predisposition to schizophrenia bears any relation to other psychoses or "nervous system disease" is lacking.

Eugenic advice in instances such as this should be given not only in the light of these genetic findings but also with complete assessment of, and full consideration for, the many other personal factors which uniquely characterize the inquirer.

CHRONIC BRUCELLOSIS

To the Editor:—A 34 year old white female patient, para I, is now two and one-half to three months pregnant. Beginning about fourteen years ago fever developed of unknown origin. Four years ago a diagnosis of undulant fever was made, at which time her doctor treated her with undulant fever vaccine. She was told after this treatment that she was cured. However, she has had recurrent fever up until six months ago. Since that time she states that she has not had recurrence of the fever. Does vaccine cure the disease? What is the accepted method of treatment in this case? Is aureomycin indicated? Matthew A. Mroz, M.D., Deland, Fla.

Answer.—With respect to expectations from therapy, to latency of infection and the likelihood of relapses or recovery, brucellosis is much like tuberculosis. Fewer false hopes of "cures" would be aroused if those who treat patients with brucellosis would adopt the point of view now widely held concerning therapy in tuberculosis. Various agents or regimens may induce remissions of variable lengths in many patients. Single agents or modes of therapy for chronic brucellosis that are successful with all patients are not known. Aureomycin is effective in inducing impressive remissions in acute brucellosis; whether or not these remissions will persist for three or five years, with or without transitory or prolonged relapses, is not yet known. It is unlikely that a fair appraisal of its value in chronic brucellosis can be made in less than five years. Although the currently observed toxic reactions from aureomycin are inconsiderable one cannot foretell from the present small experience what the future may bring after the antibiotic is widely used. If study of the patient should disclose active chronic brucellosis, some form of treatment is advisable. An informative paper with important bearings for this patient is "Undulant Fever in Children," by Hagebusch and Frei *(Am. J. Clin. Path.,* **11**:497-515 (June) 1941).

TREATMENT OF BRUCELLOSIS

To the Editor:—A woman aged 56 has had 4 children, an appendectomy and a hysterectomy. She now complains of considerable abdominal distress and pain in the right upper quadrant, arthritis in various joints, particularly in the hands, numbness, insomnia, headache, and chills and sweats with dryness of the skin. Her blood pressure and urine are within normal range. A roentgenogram of the gallbladder is negative. This patient was given an intradermal test for undulant fever which elicited a positive reaction. Result of an agglutination test of the blood was negative. Should this patient be treated for undulant fever? What is the standard treatment for undulant fever? J. L. Snavely, M.D., Sterling, Illinois.

Answer.—In the foregoing statement reference is not made to whether the patient has had fever. The clinical findings are only suggestive of brucellosis and the diagnosis in this case is not established on the basis of a positive reaction to an intradermal test. Since conclusive evidence for active brucellosis is lacking, the patient should not be given specific antibrucella therapy.

It has now been established by several investigators that a combination of streptomycin and sulfadiazine is an effective form of therapy in proved brucellosis. The dose of streptomycin is 0.5 Gm. intramuscularly every eight hours for two weeks. At the same time that streptomycin is started, 3 to 4 Gm. of sulfadiazine is administered orally, and then 1 Gm. every four hours for the same period. Therapy with both drugs is then discontinued. Because streptomycin may induce toxic reactions, especially vestibular dysfunction, dihydrostreptomycin is preferred. Dihydrostreptomycin is just as active against Brucella as is streptomycin. Recent clinical studies reveal that aureomycin is effective in acute brucellosis. The antibiotic has been administered orally in doses of 0.5 Gm. every six hours for ten days to two weeks. Definite dosage schedules remain to be worked out.

PAPAVERINE IN CORONARY DISEASE

To the Editor:—Papaverine has been advocated by some cardiologists in the treatment of acute myocardial infarction with the idea of producing vasodilatation of the coronary arteries and promoting the development of collateral circulation within the coronary artery system. Can nitrates be used for this purpose in myocardial infarction?

Ernest B. Williams, M.D., Salt Lake City.

Answer.—Papaverine acts directly on smooth muscle, causing relaxation, and has been used predominantly for the treatment of spasm of the bile ducts and of the gastrointestinal tract, occasionally also in bronchial asthma and in recent years in coronary heart disease. Conclusive evidence is lacking that it acts by sedative effect on the central nervous system. Unfortunately, it is not infrequently disappointing in the treatment both of acute myocardial infarction and of recurrent angina pectoris. Its effect is more prolonged than that of glyceryl trinitrate but erythrol tetranitrate has in many cases a more favorable effect, which last for several hours.

FAMILIAL PERIODIC PAIN

To the Editor:—A family gives the history of periodic pain in the extremities traced back through five successive generations on the mother's side. Thirteen were females and three males. The trouble starts in early childhood—in infancy in 1 known case—and continues throughout life. Discomfort in one or all extremities occurs in series of eight to twenty spells lasting a few minutes to one hour over a period of one to two days. These sessions may be a few days or a few weeks apart, becoming less frequent as the patient grows older. Exciting cause is unknown. They occur at rest or during activity, day or night, and during all seasons. Pains consist of an aching discomfort, greatest about the knees or elbows but involving the muscles, toes and fingers. The patient can usually go about his duties but at times, especially if one of the younger children, he cries with the pain. Acetylsalicylic acid and massage give the greatest relief; quinine, sedatives, antihistaminics, iodides, methacholine, calcium and glyceryl trinitrate did not help. All routine laboratory work has been normal. Roentgenograms of the extremities in 1 patient were normal. Her electroencephalogram showed mild cerebral dysrhythmia. Suggestions will be appreciated. F. R. Janney, M.D., Wauwatosa, Wis.

Answer.—Known neuropsychiatric entities do not correspond to the condition described. Myalgia and muscular rheumatism are not considered either hereditary or familial. The painful extremities seem to have been a familial affair.

ULCUS VULVAE ACUTUM

To the Editor:—A 20 year old patient has suffered for four years from recurrent attacks of erosive lesions appearing simultaneously on the mucosa of the mouth, lips, vagina and external genitalia often accompanied by fever and joint aches. At two large medical centers she was told that the condition was a type of erythema multiforme. She has had a complete allergic work-up without strikingly positive results. She has avoided all cosmetics and powders and except for treatment given during attacks has not taken drugs. She has had a trial on nonallergic diets, sulfadiazine, penicillin, multiple vaccination with smallpox vaccine and antihistamine drugs, all to no avail. Secondary invaders were cleared by the antibacterials. Her present attack has lasted two months without signs of regression. She has been treated with sulfadiazine, salicylates and alkali, and a course of diethylstilbestrol therapy. Please suggest further treatment. Will neoarsphenamine be of benefit?

M.D., Maryland.

Answer.—The description and clinical course of this case suggest in addition to erythema multiforme the disease "ulcus vulvae acutum," which is thought to be due to Bacillus crassus, a saprophyte of the genital tract. Sometimes the lesions respond to treatment with hygienic measures, but the disease is prone to recur. A thorough search should be made for a focus of infection which could conceivably furnish the source for an erythema multiforme reaction. And, since all orthodox methods of treatment have failed to give relief in this case, it might be well to try therapy with a preparation of arsenoxide intravenously, 0.04 Gm. every five days, although arsenicals have been used in other cases without much success. The administration of vitamin B and liver extract and—more important—psychotherapy are measures that give most promise of success in cases of ulcus vulvae acutum.

CHEMICALLY PRODUCED SOFT WATER

To the Editor:—Is there a hazard involved in drinking chemically produced soft water? Are there any advantages in drinking hard water? If one drinks soft water, is it necessary to add chemical or salt in tablet or liquid form to prevent harmful effects on the body chemistry?

S. Albert Molle, M.D., Los Angeles.

Answer.—The body's need for minerals is largely met through foods, not through drinking water. A fair portion of the earth's population regularly depends on rain water for drinking purposes. In other areas, such as portions of Michigan, potable waters are rich in sodium chloride. In other communities the drinking water supply is chemically softened. In none of these situations is it well established that the health of consumers is modified. It may not be inferred that all mineral constituency of water is without health significance. In a few localities, nitrites in ground waters may lead to methemoglobinemia, notably in infants. Some water supplies contain a helpful content of iodine which should not be removed by any water treatment. Some drinking water sources provide a suitable level of fluorine which aids in the prevention of decayed teeth. Slightly higher amounts of fluorides may prove detrimental and lead to impairment such as "mottled enamel." To meet the need for fluorine intake, some communities commendably are adding judicious quantities of fluorine salts to water supplies as a step in dental hygiene. Newcomers to many communities readily are upset by quick change to new types of drinking water, and such affections as diarrhea are common, particularly if magnesium compounds are present. An old belief is that hard waters favor the occurrence of lithiasis, but little support for this idea may be established. While denying any great significance for minerals in waters in human economy, it is recognized that at least some minerals, such as calcium, are metabolized with benefit. In general, the advent of any proper water-softening procedure may not be expected to call for special readjustment so far as health is concerned.

COLD HYPERERGY

To the Editor:—A 16 year old patient breaks out with typical "hives" all over her body after exposure to cold or after strenuous muscular exertion. This is accompanied by severe itching, but not other symptoms. Composition of her clothing does not affect this. She gets relief from antihistaminic therapy. Would you advise skin testing for allergic sensitiveness? What would most likely cause this condition?

Philip L. Blumenthal, M.D., Mandan, N. D.

Answer.—The syndrome described is a thermal hypersensitivity. In some cases the stimulus is cold; in others heat, and in still others both heat and cold will produce the response. The best evidence available indicates that this is not an allergic reaction (antigen reacting with antibody) but that it is most likely due to a mechanism whereby histamine is readily released from the cells by the stimulation from moderate degrees of cold and heat. Intense cold and heat stimulation will normally release excess histamine. In the abnormal cases, such as the one described, the same result is produced by a lesser stimulus. This should be regarded not as allergy but rather as hyperergy (exaggerated normal response).

Of course, in such a primary response, tests with foods, clothing or other allergens would be useless. One must keep in mind, however, that there are cases of true food, inhalant and other allergy where cold or heat act as secondary factors, precipitating the allergic reaction.

Antihistaminic drugs are usually effective for these conditions. They are most efficient when used prophylactically, a dose of the medication being taken about one hour preceding the anticipated exposure to heat or cold. A change of climate frequently relieves the syndrome. A tolerance can be frequently produced by varying schemes of daily exposure to cold water followed by warm, or to baths the temperature of which is gradually diminished from day to day. A more complete discussion of the subject may be found in the chapter on allergy to physical agents in Feinberg's "Allergy in Practice," Chicago, Year Book Publishers, 1946.

HEMOLYSIS DUE TO ISOHEMAGGLUTININS

To the Editor:—In routine cross matching prior to a blood transfusion, I have noted that frequently we obtain some hemolysis of the recipient's erythrocytes when the donor serum is added. This occurs chiefly when a Landsteiner group O donor blood is matched with a recipient of another blood group. In these cases, I assume that there is an alpha and/or beta hemolysin present. What do you consider to be the maximum titer of a hemolysin in the donor's serum that can be safely present in a 500 cc. transfusion to a recipient with erythrocytes susceptible to that hemolysin? I have learned that some responsible blood banks inactivate the donor serum at 56 C. for ten minutes in order to eliminate this hemolytic action and thus allow the agglutination reaction, if present, to be manifest. Is this a dangerous procedure? Would it not hide a potential hemolytic reaction in the recipient? What do you consider to be the best cross matching technic for routine purposes that would reveal the agglutinating and hemolyzing properties of the donor serum on the recipient's erythrocytes?

M.D., New York.

Answer.—If hemolysis is due to A or B isohemagglutinins, it is usually preceded or accompanied by agglutination. Therefore inactivation of donor serum would probably not hide potential hemolysis from this source. However, in using group O blood for group A, AB or B recipients it is advisable either to add group-specific substances A and B to diminish the isoagglutinin content or to select blood which is already of low isoagglutinin titer; that is, less than 1:200 when tests are carried out in saline solution by the tube-centrifugation method. Recently attention was called to the fact that the isoagglutinin titer of some group O bloods is much higher when AB plasma or serum is used as a diluent than when saline solution is used. It has been suggested that these persons may be dangerous universal donors. Therefore, it may prove advisable to measure isoagglutinin titers in these diluents rather than in saline solution. The best cross matching technic for routine purposes is probably the tube method. However, it is good practice to cross match the blood of persons who have received multiple transfusions or who are suspected of Rh sensitization. The open slide method or the tube method with plasma or saline solution as a diluent to guard against reactions due to the presence of the so-called "blocking" or "hyperimmune" antibodies in the recipient's serum may be used.

PATCH TESTING ON MUCOUS MEMBRANE

To the Editor:—Please describe the technic of patch testing on mucous membranes.

Walter Weinberger, M.D., Juniata, Altoona, Pa.

Answer.—Patch testing on mucous membranes is considered when stomatitis is suspected from direct contact with an allergenic substance with the mouth, as with penicillin, tooth paste and similar possible allergens. The technics of such are described fully by Farrington (Modifications of the Goldman Technique for Contact Testing of the Buccal Mucosa, *J. Investig. Dermat.* 8:59, 1947) and Goldman and Goldman (Contact Testing of the Buccal Mucous Membranes for Stomatitis Venenata *Arch. Dermat. & Syph.* 50:79, 1944). Briefly, this consists of fastening the allergen with collodion to a small rubber suction cup which is held in place on the surface of the teeth A modification of this is to fasten the allergen to a rolled up rubber finger cot and to anchor the latter with silk floss around a tooth with the help of a button on the buccal surface of the teeth. The allergen is usually held in place about twenty to thirty minutes. The mucosa on the contacting surface is examined for reactions several hours to a day or two later.

TUBEROUS SCLEROSIS

To the Editor:—A girl, aged 25, has one brother, aged 28, who is epileptic and mentally defective due to tuberous sclerosis—diagnosed by biopsy of a skin lesion on the chest. He was born with the "brown spots" but had no major epilepsy till age 17 and no minor attacks till after that. His father had epileptic attacks at age 17 and had "sick headaches with vomiting" to middle age. The father had 1 brother who had the "brown spots" and one arm shorter than the other. The father has 5 sisters, none of whom had symptoms of tuberous sclerosis so far as is known. The mother's father was "nervous" and died at age 42 of diphtheria; the mother's mother reached the age of 89, the father's mother 70 plus, and the father's father 92.

The girl contemplates marriage and children. With the brother's diagnosis just recently made, she has been told, dogmatically but perhaps correctly, that she must never have children. The girl has shown no sign of tuberous sclerosis or any other physical defect. Her intelligence is at a high level.

Is tuberous sclerosis hereditary? If so is it dominant, recessive or sex linked? What percentage of cases are sporadic? Is there sufficient evidence to condemn this patient to childlessness?

M.D., Canada.

Answer.—Authorities consider that tuberous sclerosis is a form of Recklinghausen's disease (neurofibromatosis or congenital ectodermatosis). Associated features of tuberous sclerosis (epiloia) are sebaceous adenoma, brown patches (café au lait), and nevi of the skin, and nodules in kidney, heart (rhabdomyomasa), retina or brain. Pathology of the brain results in epilepsy and mental deterioration. (Yakovlev, P. I., and Guthrie, R. H.; *Arch. Neurol. & Psychiat.* 26:1145 [Dec.] 1931).

Epiloia is believed to be transmitted as a dominant, not sex linked. As with other serious diseases in which patients die young or fail to have children, the number who owe their disease to mutation and not to inheritance from a parent is relatively large—"from a quarter to a half of all cases encountered." "Transmission through two generations is not infrequent, but transmission through three is distinctly rare." "One person in 60,000 to 120,000 suffers from epiloia as a result of mutation in a parent." (Roberts, J. A. F.: An Introduction to Medical Genetics, London, Oxford University Press, 1940.) The almost complete absence of symptoms of epiloia in relatives of the brother suggests that his epiloia has arisen from mutation. His seizures might be inherited from the father, who had a history of convulsions and migraine. For possible light on this point, the sister might wish to have an electroencephalogram of herself. As the evidence is not clear that the brother's epiloia was transmitted as a dominant through preceding generations and because the young woman possesses genetic traits that are desirable, advice that she remain childless seems hardly justified.

METASTATIC CANCER OF VERTEBRA

To the Editor:—About one year ago a patient had a resection of the descending colon for carcinoma. Recently, she has suffered pains in her back and in one leg. Roentgenograms seem to indicate a recurrence in the fourth and fifth lumbar vertebrae. What is the best treatment of this condition either by roentgen rays or by estrogenic substance?

M.D., New York.

Answer.—The pain from skeletal metastasis usually responds well to irradiation therapy. It would seem to be the treatment of choice in the described case. In the light of our present knowledge, estrogenic substances would not be indicated. The usual pain-relieving drugs should be employed as necessary.

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ACUTE ARTERIAL INJURIES

NORMAN E. FREEMAN, M.D.
San Francisco

Acute injuries of the major arteries are encountered not infrequently in civilian practice. They present a problem, both from the standpoint of immediate mortality and in regard to the ultimate functional results. Arrest of hemorrhage and the preservation of an adequate arterial supply to the extremity are the objectives of treatment. "The final result and the ultimate prognosis," as Elkin[1] has written, "will depend in the main upon the original treatment received shortly after the injury."

INCIDENCE

The incidence of battle injuries of the arteries in World War II was computed by DeBakey and Simeone[2] to be approximately 1 per cent of all casualties. Although the proportion of civilian injuries due to penetrating wounds is smaller than in war casualties, the great annual number of civilian accidents necessarily entails the sustaining of some type of vascular injury by a large number of persons. The National Safety Council recently reported approximately 10,000,000 civilian accidents occurring annually, and a majority of these injuries involved the extremities. It has been estimated that almost 8 per cent of our population is injured annually by various types of accidents. An understanding of the mechanisms of arterial injury and the principles of adequate early treatment is therefore necessary for physicians who may be called on to handle such emergencies.

ETIOLOGIC FACTORS

The majority of arterial injuries are produced by lacerations or penetrating wounds. It must be emphasized, however, that an injury to a major artery is not necessarily indicated by an open wound. Fractures of the long bones may be associated with lacerations of the vessels from sharp fragments, or there may be compression of the artery from angulation, especially in cases of dislocation. Crushing injuries, even without fracture or dislocation, may disrupt the continuity of the blood vessels or produce such arterial spasm that the circulation to the distal parts is seriously impaired.

TYPES OF INJURY

Arterial injuries may be considered under the following categories: (1) complete division; (2) partial division; (3) contusion, with or without thrombosis, and (4) compression.

Complete division of a major artery, even associated with a large wound, does not necessarily lead to exsanguinating hemorrhage. Retraction of the ends of the injured vessel with the attendant arterial spasm may permit formation of a thrombus which effectively seals the lumen. Low blood pressure from shock favors the development of such thrombosis.

If the vessel is not completely divided, retraction of the two ends is impossible and the likelihood of spontaneous arrest of hemorrhage through thrombosis is diminished. Even though the bleeding is temporarily arrested, secondary hemorrhage is likely to occur. If the external wound is small, further bleeding will be prevented by the resistance of the tissues. The hematoma thus formed will be in direct contact with the pulsatile arterial stream. In this manner a pulsating hematoma is formed. Organization of the hematoma leads to the formation of a false aneurysm. If the accompanying vein is injured simultaneously, an opportunity is provided for the arterial blood to escape into the venous side of the circulation. In such circumstances the pressure within the hematoma is less and healing is more likely to occur. However, an arteriovenous fistula results.

Contusion of a major artery may or may not result in thrombosis. In the Department of Experimental Surgery, University of California, laboratory experiments have confirmed the observations of Smith[3] that trauma to the arterial wall, even with extensive destruction of the intima, does not produce thrombosis as long as the volume flow of blood through the vessel is maintained. Similarly, obstruction to the flow does not produce intravascular thrombosis as long as the intimal lining is intact. Only if there is a combination of intimal damage and restriction of blood flow is thrombosis likely to occur.

Arterial spasm frequently follows contusion. Even though the vessel has not been touched, the artery may go into spasm, involving not only the main vessel but the collateral vessels as well. The exact mechanism is not understood. It is apparently dependent on the intrinsic properties of smooth muscle, since the spasm is not relieved by periarterial injection of procaine hydrochloride, by stripping of the nerve plexus from the artery or even by injection of the sympathetic ganglions supplying the part.

From the Division of Surgery, University of California Medical School.

Read before the Section on Surgery, General and Abdominal, at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

[1] Elkin, D. C.: Vascular Injuries of Warfare, Ann. Surg. **120:** 284, 1944.

[2] DeBakey, M. E., and Simeone, F. A.: Battle Injuries of the Arteries in World War II: An Analysis of 2,471 Cases, Ann. Surg. **123:** 534, 1946.

[3] Smith, S.: Studies in Experimental Vascular Surgery, Surgery **18:** 627, 1945.

Compression of an artery by a displaced bone fragment in the case of a fracture or dislocation is a serious lesion, since complete obstruction to the blood flow, together with even a slight amount of trauma to the arterial wall, will lead to thrombosis. Arterial compression is encountered particularly with injuries about the elbow and the knee where the vessels are relatively fixed and lie close to the bones.

SITE OF INJURY

It is well known that injuries of arteries in certain locations may have little effect on the survival of the extremity, while obstruction of the vessels above or below this level may be crippling.[1] There are certain anatomic bottlenecks where loss of arterial continuity is especially serious. In general, these bottlenecks are close to the joints of the extremities, since it is at these points that the collateral vessels are most vulnerable. For instance, it is recognized that loss of the superficial femoral artery rarely leads to gangrene in comparison with obstruction of the common femoral or popliteal. Similarly, in the upper extremity, the axillary artery distal to the branches about the shoulder joint and the brachial artery distal to the profunda can be ligated with impunity, whereas sacrifice of the vessel immediately above these collaterals frequently leads to serious vascular insufficiency. The importance of the anatomic location of the arterial injury is borne out by the statistical analyses of DeBakey and Simeone.[2]

DIAGNOSIS

The diagnosis of acute arterial injury should be made at the earliest possible time so that proper treatment can be instituted. Delay may lead to progressive thrombosis of the artery distal to the point of obstruction, with occlusion of collateral vessels. In addition, anoxia from ischemia may produce irreversible alterations in the tissues, especially nerve and muscle. Griffiths,[5] emphasizing the importance of early diagnosis stated, ". . . preventive treatment must be early, since the fate of the infarcted muscle is decided in hours and not days."

Of great significance in the early diagnosis of acute arterial injury is the appearance of the extremity. Extreme pallor or blanching is an important early sign. Palpation of the peripheral pulses should be part of the routine examination of every injured extremity. The general circulatory depression associated with shock may make it difficult to feel the peripheral pulses. Oscillometry will serve to confirm the information obtained from palpation of the pulses. In case an oscillometer is not available, an ordinary blood pressure apparatus will suffice. The movements of the column of mercury or the oscillations of the needle of an aneroid manometer when the cuff pressure is set at about diastolic blood pressure will give reliable information. Loss of sensation in the distal parts of the extremity, especially when associated with severe pain, is of value as an early sign. In fact, ". . . excessive pain on admission of a well-splinted fracture should make one suspicious of traumatic arterial spasm" (Clark[6]).

Frequently, the attendant lesions of bone or nerve are more dramatic and the vascular injury will be overlooked unless special attention is directed toward an evaluation of the circulation. An injured artery does not show up on the roentgenogram. Auscultation is important, especially in penetrating wounds. A systolic bruit is characteristic of a false aneurysm, though it may not be audible for the first few days after injury.[7] A continuous bruit accentuated in systole is typical of the communication between an artery and a vein.

It is essential to distinguish the false aneurysm from the arteriovenous fistula since the prognosis and treatment of these two conditions differ widely. The pressure within the sac of a false aneurysm is high.[8] There is a greater tendency to expansion or to rupture. The expansile quality produces damage to contiguous nerves and obstructs the collateral vessels. By contrast, the intrasaccular pressure in the presence of an arteriovenous fistula is low and the very existence of the communication between the artery and the vein is a stimulus for the development of collateral circulation. It is advisable to postpone operation on an arteriovenous fistula for two to three months to allow time for the development of collateral circulation. Occasionally, in the presence of a large fistula, the increased strain placed on the heart from diversion of large quantities of blood into the venous side of the circulation will necessitate earlier operation.

TREATMENT

A. Immediate Treatment.—Arrest of hemorrhage is the first requirement in the treatment of an acute arterial injury; ". . . important as is the salvage of a limb, the salvage of life necessarily takes precedence of it."[2] Unfortunately, the tourniquet frequently comes first to mind as the means of arresting hemorrhage from an extremity. The tourniquet, however, unless used only as a temporary measure, invariably seals the fate of an extremity, since it cuts off all the collaterals. Direct pressure on the bleeding point is far more desirable, especially with elevation of the extremity.[9] The wound may be packed with gauze held on by a snug bandage. This gauze will have to be removed within two to four days and the hemorrhage may recur. It is advisable that preparations be made for exploration of the wound at the time that the gauze packing is removed. The introduction of hemostatic absorbable material, such as oxycel[3] gauze, may be more advantageous. Direct application of forceps to the severed artery may be a life-saving measure. These forceps can be left in situ and removed when facilities are available for exposure of the vessel. In the presence of a tangential wound of the artery, however, the application of forceps precludes the possibility of repair. All these measures for the arrest of hemorrhage should be given preference, and the tourniquet reserved to the last. Its use is a confession of failure.[10]

Restoration of both the volume and the hemoglobin content of the blood is essential, especially when the main arterial channel is permanently interrupted. Low blood pressure and reflex vasoconstriction prevent the full functioning of the collateral pathways. Persistence of anemia and hypoproteinemia will delay wound healing.

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B. Early Operative Treatment.—As soon as facilities are available, débridement of the wound, with excision of devitalized and traumatized tissues, should be undertaken. The injured vessel should be exposed by extending the original wound. Temporary control of the main artery is essential, especially when dealing with a pulsating hematoma or secondary hemorrhage. Proximal ligation of the artery above the point of injury should be avoided, since the bleeding will often recur and collateral vessels are needlessly sacrificed. After adequate exposure, rubber tubes or rubber-shod arterial clamps are placed about the artery both proximally and distally to control the bleeding. The point of injury can then be sought in a dry field without the danger of injury to accompanying nerves or other important structures.

Restoration of the blood flow through the original channel is the ideal form of treatment. The damaged portion of the vessel wall should be carefully excised and the adventitia removed for a distance of 1 to 2 cm. from the edges of the incision. The vessel should be carefully irrigated with isotonic sodium chloride solution containing 10 mg. of heparin in 100 cc. of solution. The defect should then be closed intima to intima with nonabsorbable suture material, which has been thoroughly oiled, on a fine, curved atraumatic needle. It is advisable where possible to suture the vessel transversely in order not to restrict the lumen. A continuous everting mattress suture interrupted at three places is most satisfactory. Experience with arterial suture either on the cadaver or in the experimental laboratory is necessary.

Arterial repair was found to give the most satisfactory end results of any method of restoration of the circulation in the cases analyzed by DeBakey and Simeone.[2] It was possible, however, in only a small proportion of the cases. Generally, the trauma was so extensive or there was such widespread destruction of the wall of the blood vessel that suture repair could not be used. End to end anastomosis was likewise impossible because of separation of the two ends of the vessel. Insertion of a vein graft either by means of suture or by the nonsuture technic with the use of cobalt-chromium alloy (vitallium®) tubes proved to be disappointing in more than half the cases. Plastic tubes, such as those of methyl methecrylate (lucite®) used by Hufnagel [11] in the experimental laboratory, may in the future provide a method of bridging over an arterial defect at least temporarily. Any means by which the arterial circulation can be reestablished is worth while in that time may be gained for the development of collateral circulation.

C. General Treatment of the Ischemic Extremity.—The treatment of the ischemic extremity resolves itself into means which will allow the maximum arterial inflow and, at the same time, the minimum metabolic demands of the tissues. The limb should be kept horizontal, at or slightly below the level of the heart. Direct application of heat should be scrupulously avoided, since raising the temperature of the part only increases the metabolic demands, while the volume of inflow is limited by the arterial occlusion.[12] The limb should be kept in a cool environment, but refrigeration by the use of ice packs should be avoided unless amputation of the extremity is inevitable. Excessive cold injures the tissues.

The use of a circular plaster encasement in the treatment of a fracture in a limb with impaired circulation is hazardous. The margin of safety between the pressure in the collateral vessels and the pressure in the tissue spaces is so narrow that the addition of even a slight amount of pressure from without may shut down the arterial supply completely. Again, frequent inspection and examination of an ischemic limb is necessary. Immobilization by means of a posterior plaster shell, or even skeletal fixation or traction, is preferable to a circular plaster encasement.

Sympathetic block by the paravertebral injection of procaine hydrochloride is of help in overcoming the peripheral vasospasm so frequently associated with arterial injuries. These injections should be repeated every twelve hours. The administration of whisky is useful in producing relaxation of peripheral blood vessels. In the presence of traumatic arterial spasm, papaverine in doses of ½ grain (0.03 Gm.) every four hours is of help. Cooper and his associates,[13] in experimental work on the administration of tetraethylammonium chloride in dogs after resection of the terminal aorta, showed that a high percentage of recovery followed the use of such a general vasodilator. Clinical experience in the treatment of obliterative arterial disease has demonstrated, however, that the blood flow through an ischemic extremity is not increased after the administration of a drug which acts on blood vessels throughout the body.[14] On the contrary, an actual diminution generally occurs, since the normal blood vessels open up more than those affected by disease. Thus the available blood flow is diverted away from the ischemic extremity. In general, however, it must be admitted that the results of chemical interruption of sympathetic vasoconstrictor impulses in the treatment of acute arterial injuries have not been dramatic.

Severe edema of the muscles of an extremity takes place with revascularization after prolonged ischemia. Since the muscle is contained within rigid enveloping fascia, this swelling is accompanied with a rise in interstitial pressure sufficient to cut off the collateral circulation. There may be no accompanying superficial edema, and the blood supply to the skin of the distal parts of the extremity may be sufficient to preserve the life of the part. Unless the tension within the fascial envelope is relieved, widespread necrosis of the muscles will result, leading to Volkmann's contracture. Parkes [15] made a notable contribution to the understanding of this condition. Longitudinal incision of the fascia should be performed to decompress the muscle that is in danger of infarction. Fasciotomy should be performed *early*, since ischemic nesrosis develops within a few hours. Damage to the nerves which course through the fascial compartment may likewise be prevented by early fasciotomy. When it is realized that a pressure of 60 to 70 mm. of mercury is sufficient to block the conduction of impulses through a nerve, it is apparent that increasing loss of sensation and paralysis are significant signs of compression.

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12. Freeman, N. E.: Influence of Temperature on the Development of Gangrene in Peripheral Vascular Disease, Arch. Surg. **40:** 326 (Feb.) 1940.

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D. Definitive Treatment.—Since this paper is concerned with acute arterial injuries, little will be said concerning definitive treatment. The incidence of gangrene following excision or repair of an aneurysm or arteriovenous fistula is extremely low. In a series of more than 1,000 cases treated in the Vascular Centers of the United States Army General Hospitals, there were only 2 cases of gangrene. Paradoxic as it may seem, the best safeguard for the survival of a limb is to permit an acute arterial wound to develop into an aneurysm. In the presence of an aneurysm, time must be given for the development of collateral circulation. Compression of the artery above an aneurysm by some mechanical device, such as a "Matas compressor," for increasing periods of time, stimulates the development of collaterals. Sympathectomy may also be performed as an elective procedure.[16] Collateral circulation develops spontaneously in the presence of an arteriovenous fistula, but, again, time is required. Unless there are urgent indications for intervention, it is better to wait two to three months before instituting definitive treatment.

As long as neither the patient's life nor the life of the extremity is in danger, it is better to wait. Only the prospect of death from hemorrhage or the probability of a crippled ischemic limb warrants early intervention. The first secondary hemorrhage is not usually fatal, but it should be regarded as a "red signal." It is an "inexorable indication for exploration of the wound."[7] As regards the functional state of the limb, progressive nerve damage, as shown by paralysis and increasing anesthesia of the distal parts, should be taken as an urgent indication for intervention.

CONCLUSION

The crippling effects of ischemia after acute injuries to the major arteries can be prevented only by early diagnosis and adequate treatment.

ABSTRACT OF DISCUSSION

Dr. Frederick W. Cooper Jr., Atlanta, Ga.: Dr. Freeman has so excellently covered this topic that there is little left for me to say, other than to reemphasize some of the points he has made. During the past few years in Atlanta my colleagues and I have seen increasing numbers of patients with acute arterial injuries who actually have no external wounds or only a trivial external wound which is remote from the site of the vascular occlusion. These patients usually have sustained fractures, particularly about the knee and the elbow. The arterial lesion is frequently overlooked, and the outcome is one of the grave ultimate results which Dr. Freeman has so accurately described. In patients with fractures, one should, of course, be aware of the possibility of arterial injury. Following the measures Dr. Freeman described, and after the use of sympathetic block, if the color of the extremity does not improve, exploration of the site of arterial injury should be carried out. We have seen patients in whom small spicules of bone penetrated the artery and produced thrombosis at that point. In many instances, the bone may be removed and the artery sutured. In fractures about the knee or in dislocation of the elbow joint, the vessel may be mechanically compressed, and, even though the fracture seems to be suitably reduced, the vessel may be damaged. We have seen a great number of patients with arterial injuries in whom the hemorrhage was controlled by means of packs. Packs are excellent as a temporary measure until the patient is prepared for some form of definitive treatment, but, here again, permitting a pack to remain in a wound several days almost invariably leads to disaster.

Dr. Harris B. Shumacker, New Haven, Conn.: Acut arterial injuries, though not common, are far more seriou than their statistical incidence would indicate because of th grave consequences which follow. Indeed, as pessimistic a are the figures of the consequent disasters when measured b the incidence of gangrene—the usual criterion—the results ar actually far worse, because many of the patients who surviv without gangrene have limbs crippled from ischemic paralysi of nerves or massive ischemia of muscle groups. Minor disturbances of circulation are even commoner. As Dr. Freema pointed out, one should aim at getting a blood supply to th injured part. A great deal has been learned about reparativ procedures on arteries in recent years. From the laborator standpoint it has been pretty well established that evertin mattress sutures offer a better chance of success than any othe method of suturing. There is little or no danger of the suture vessels leaking because of the pressure of the blood withi These vessels heal and regain their strength much in the sam fashion as do other tissues. We have gained a great deal o clinical experience in recent years because of the introductio of certain procedures in the correction of congenital defect of the heart and great vessels, and have optimism about reparative measures. The trouble lies in certain peculiarities of th acute vascular injuries. In the first place, in wartime, treatmen is usually necessarily delayed because of the military situatio In peacetime, delay is unfortunately the rule rather than th exception. In the second place, frequently the extent of injur is so great that anticoagulant therapy must be delayed for som time because of the hazard of bleeding, not from the suture vessel, but from other points of injury. I feel, as Dr. Freema does, that the management of acute injuries to arteries give us a pessimistic feeling at present, but, as he does, I feel that if all of us think more about these problems, if our confrère in the profession are more aware of the need for early treatmen and the proper measures to be instituted and if patients i general seek treatment early, some day someone from a platform such as this will be able to present far better result than have been obtained in the past.

Dr. Geza de Takats, Chicago: Dr. Freeman has describe the possibilities of acute arterial injuries graphically. Th treatment for acute arterial injuries should be grouped abou two distinct objectives. First, as Dr. Freeman has pointed ou hemorrhage should be arrested and antishock measures shoul be instituted. Second, suture of the artery is preferable t ligature. It is strange that while rupture of the intestine i being continuously repaired in all hospitals throughout th country, there is a great deal of hesitancy about repairing an suturing an arterial wound. Every operating room should hav 5-0 silk and a swedged needle, and, if at all possible, a sutur should be attempted. The importance of decompressing collateral circulation by fasciotomy can hardly be overemphasized What needs to be stressed is the triphasic treatment of an acute arterial occlusion; namely, papaverine intravenously, heparin intravenously and sympathetic block. Unless there are other possible visceral injuries, use of heparin is most important after hemorrhage has been arrested, since the small trickle of blood through insufficient collaterals or below the site of obstruction in the main trunk may clot easily and add to the degree of ischemia. The drug also protects the suture line in the artery. If heparin is needed in the extremity and not in the entire patient, it may be given intra-arterially, that is, kept in the extremity under a tourniquet. Following acute vascular injuries, especially the ones associated with tissue trauma, the patient's clotting tendency is increased and there need be no hesitation to give anticoagulant drugs. In the case of a growing, pulsating hematoma or a recognized arteriovenous fistula, anticoagulants are naturally not advisable. Venous grafts and temporary plastic tubes to bridge the gap will not be useful in the hands of the young general surgeon except after special training. The emergency treatment of acute arterial occlusions, however, will save many limbs with simple, readily available measures. If a limb is irrevocably lost, it may be packed in ice until the patient's nutritional status is improved, until blood has been replaced. However, the refrigeration of an extremity which could possibly be saved may well push it over into a gangrenous state. I should like to repeat a warning which is given all our residents: Never refrigerate an extremity as long as you expect to save it.

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[16] Shumacker, H. B., Jr.: Sympathectomy as an Adjuvant in the Operative Treatment of Aneurysms and Arteriovenous Fistulas: I. Sympathectomy Performed Before or at Time of Operation, Surgery 22:571, 1947; II. Sympathectomy Performed After Operation, ibid. 22:597, 1947.

DR. FREEMAN: I have never seen an extremity saved which had received an arterial injury and was refrigerated. Refrigeration is an excellent measure as far as diminishing shock is concerned, but it will not save the extremity when there is an arterial injury. Another point which was brought up by Dr. de Takats is the question of shock. It is extremely important to establish an adequate circulating blood volume in these patients at the earliest possible moment in order to get circulation through the collateral vessels. Vasoconstriction in response to loss of blood will affect the collaterals just as it will normal blood vessels. Dr. Shumacker mentioned the laboratory experiments. Here again I feel the training program should be emphasized. It is only by actually working with blood vessels in the laboratory or in the cadaver that residents and fellows can get experience in taking care of vascular injuries. Of course, work on dogs is needed, also, and I put in at this time a plea for help on the problem of combating the activities of antivivisectionists. Dr. Cooper mentioned the compression injuries, which brings up the question of local segmental arterial spasm. Many times a blood vessel does not even have to be touched, and, if there is tension or traction, that vessel will go into spasm. Sometimes the spasm will last for long periods. Secondary thrombosis may take place. In experiments made with Dr. Frank Leeds at the University of California Department of Experimental Surgery last year, we found we could traumatize arteries in dogs, and provided we had a free flow across the line of the trauma we could destroy the intima over a distance of 1 cm. and still not get thrombosis. If a bulldog clip was applied so as to obstruct the circulation, then the deficient blood flow plus the injury led to thrombosis.

THE LEADING CAUSES OF DEATH AMONG PHYSICIANS

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The obituaries published in THE JOURNAL in 1948 and summarized in the editorial in the January 22 issue of THE JOURNAL [1] furnished data on which could be based an analysis of the leading causes of death among physicians, and a comparison of these leading causes with those of the population of the United States in general. Only 3,167 of the 3,230 reported deaths are analyzed, since the causes of death for 63 physicians were not reported.

The seven leading causes of death in the general population are: diseases of the heart, cancer, intracranial lesions of vascular origin (cerebrovascular), accidents, nephritis, pneumonia and influenza, and tuberculosis. These are not the same as the seven leading causes of death among physicians. For example, arteriosclerosis, diabetes and cirrhosis of the liver each caused more deaths among physicians than tuberculosis. For purposes of comparison with other published studies, particularly the bulletin, "What Is the Leading Cause of Death? Two New Measures," [2] we will analyze the seven causes of death mentioned, and the remaining causes will be grouped under the caption "All Others."

The average ages at death of physicians for 1948 and the white male population for 1945 are presented in table 1. The average age at death for the age-adjusted population (column 3) will be discussed later. White male population figures were used for comparison because of the small percentages of females and nonwhite persons in the physician population. Race and sex adjustments would not be large enough to alter the conclusions. Since only a small number of physicians are below the age of 25, their average age at death was much higher than the average age at death of the general white male population (column 1); for example, the pneumonia victims among physicians died at an average age of 74.3 years (column 2). This was much higher than the average age at death for deaths due to pneumonia in the general white male population because of the large number of deaths from this cause which occur during the first year of life. The average age at death of tuberculosis victims was 64.5 years for physicians, about fifteen years above that for the white male population. The lowest average age at death was for accidents, 57.2 years, about fourteen years above that of the white male population. The other causes of death, heart disease, cancer, cerebrovascular disease and nephritis, resulted in average ages at death in the high 60's and low 70's, values not far above those of the general population, since these "older" causes of death are concentrated at the higher ages. The age distribution curves for each of the causes of death among physicians tend to be typical of those developed by the "older" causes, a peak occurring at a high age and a long tail extending toward the low ages. The small number of cases for some of the causes does not allow a complete definition of the typical curves for these causes.

ACTUAL VERSUS EXPECTED DEATHS

In order to compare the relative number of deaths from the leading causes among physicians with the corresponding figures for the white male population, it is necessary to adjust for the fact that the age distributions are decidedly different. This adjustment can be made by applying age-cause specific rates of mortality for the white male population to the age distributions of physicians.[3] The numbers and percentages resulting from these calculations are shown in table 2, columns 4 and 5, for the causes listed. We shall refer to these figures as the expected number of deaths among physicians. The actual numbers and percentages of deaths among physicians are shown in columns 1 and 2 of table 2. Since the published obituaries include some deaths which did not occur in 1948 and omit others because the reports were not received in time, it is impossible for us to make direct comparisons between the actual and expected numbers of deaths, either in total or in age-cause classes. Consequently, available data do not furnish observed age-cause mortality rates. We can, however, analyze the relative importance of the causes of death and the average ages at death of persons dying from the different causes. It is assumed that the age distributions are not materially biased by underreporting.

Virginia Van Heule Horan, Research Assistant, coded the causes of death and made the machine computations.

[1] Obituaries of Physicians Published in 1948, editorial, J. A. M. A. **139**: 230 (Jan. 22) 1949.

[2] Bulletin 64, Bureau of Medical Economic Research, Chicago, American Medical Association, 1948.

[3] We used the mortality rates for white males which were calculated from figures shown in Vital Statistics of the United States, Part I, 1946, Federal Security Agency, United States Public Health Service, 1948, pp. 18 and 110. For example, there were 144.6 heart deaths per 100,000 white males aged 40 to 44. On July 1, 1948 there were 25,549 physicians in this age group. This means that we would expect 36.9 deaths from heart diseases among physicians aged 40 to 44, if their death rate were exactly the same as that of the white male population (25,549 × 144.6 ÷ 100,000 = 36.9). Similar calculations for each age group and for each c[illegible] furnish the expected number of deaths among physicians.

Heart disease is the first ranking cause of death as expected, but the observed percentage is high with deaths due to heart disease actually accounting for 42.2 per cent of the total; 38.9 per cent was expected. The deaths due to cerebrovascular diseases accounted for the second largest number, 12.3 per cent, and deaths due to cancer ranked third with 11.0 per cent of all deaths. This is contrary to expectation, which would have ranked cancer second with 13.3 per cent and cerebrovascular disease third with 9.5 per cent. Only a small percentage of deaths was attributed to each of the other causes, and the shifts in rank were relatively unimportant with the exception of nephritis, which actually ranked sixth and was expected to rank fifth, and tuberculosis, which has already been mentioned as being far below the expected value with an expected percentage of 3.1 and an observed percentage of 0.8. In view of the relationship between certain specialties and the frequency of deaths due to cancer as reported by Dublin and Spiegelman,[4] it is amazing that the deaths from cancer occupied only the third rank, below both heart and cerebrovascular disease. The observed cancer percentage was 11.0 as compared with an expected 13.3. This relatively low cancer death rate is probably due to the ability of the physicians recognize symptoms early and to begin thera promptly. Is the high death rate from heart dise due to the traditional unwillingness of the physicia to refuse to accept calls at all hours even though t result is loss of sleep and irregularity of meals? Or emotional strain? Whatever the explanation, he disease is in reality an occupational hazard of t medical profession.

Table 1.—*The Average Ages at Death by Cause*

Cause	1945 White Male Population * (1)	Physicians † (2)	Age-Adjusted Population ‡ (3)
Heart	66.6	67.5	69.1
Cerebrovascular	69.6	70.4	71.6
Cancer	64.7	67.4	67.9
Accidents	43.3	57.2	57.6
Pneumonia	48.8	74.3	69.5
Nephritis	67.8	69.7	71.0
Tuberculosis	49.3	64.5	54.4
All others	44.5	66.2	65.6
All causes	57.8	67.3	67.5

* For 1945; from table 8, page 18, Bulletin 64. Comparable 1948 data for the white male population are not now available. Later averages were not calculated because the important comparison is between columns 2 and 3 rather than columns 1 and 2.

† These figures differ slightly from those reported for 1948 in The Journal,[1] because of the exclusion of the 63 cases in which the cause of death was not stated and because of a correction in the age at death of 1 physician reported after publication.

‡ Footnote 3.

Table 2.—*Numbers, Percentages and Ranks by Cause of Death for Physicians and the Age-Adjusted Population* *

Cause	Physicians			Age-Adjusted Population		
	Number (1)	Percentage (2)	Rank (3)	Number (4)	Percentage (5)	Rank (6)
Heart	1,338	42.2	1	1,546	38.9	1
Cerebrovascular	390	12.3	2	379	9.5	3
Cancer	348	11.0	3	527	13.3	2
Accidents	173	5.5	4	256	6.4	4
Pneumonia	126	4.0	5	143	3.6	6
Nephritis	105	3.3	6	250	6.3	5
Tuberculosis	26	0.8	7	125	3.1	7
All others	661	20.9	..	754	18.9	..
All causes	3,167	100.0	..	3,980	100.0	..

* The entries in columns 1 and 4 cannot be compared directly because of underreporting of deaths in The Journal. For internal comparisons use columns 2 and 5.

The differences between the observed and expect average ages at death were in some instances even mo striking than the percentage differences (table 1). T physicians who died from pneumonia were on t average considerably older than would be expect 74.3 years compared with 69.5 years (column 3). similar situation holds for tuberculosis, with the actu deaths occurring at an average age of 64.5 years co pared with an expected of 54.4 years. These differences are probably due to the ability of the physicians to recognize these diseases and follow the therapeutic procedures required. As anticipated, the average age at death among physicians dying as a result of accidents was surprisingly close to the expected value. It is particularly noteworthy that the average age at death from all causes of deaths among physicians differs insignificantly from the expected, 67.3 years observed and 67.5 years expected. This confirms the observations of Dublin and Spiegelman[5] that the mortality experience of physicians is comparable with that of the general white population. It is clear that the physicians give their patients the same quality of medical care as they themselves receive although the causes of death are different. Apparently the members of the medical profession cannot give their fellow members longer life than their patients enjoy.

Table 3.—*Percentage Distribution of Three Measures for Ranking the Causes of Death Among Physicians*

Cause	Number of Deaths		Life Years Lost		Working Years Lost	
	Percentage (1)	Rank (2)	Percentage (3)	Rank (4)	Percentage (5)	Rank 6)
Heart	42.2	1	42.4	1	35.6	1
Cerebrovascular	12.3	2	10.0	3	5.7	4
Cancer	11.0	3	10.4	2	8.6	3
Accidents	5.5	4	8.4	4	15.7	2
Pneumonia	4.0	5	2.7	6	1.8	6
Nephritis	3.3	6	2.9	5	2.4	5
Tuberculosis	0.8	7	0.9	7	1.3	7
All others	20.9	..	22.3	..	28.9	..
All causes	100.0	..	100.0	..	100.0	..

TWO NEW MEASURES

Two new measures for ranking the leading causes of death, life years lost and working years lost, were developed and explained in Bulletin 64.[2] The application of these two new measures to the causes of death for the entire population resulted in some striking changes in the ranking of the seven leaders. These changes were a result of wide variations which existed between the age distributions of deaths from the seven causes analyzed. In table 3 are presented the percentages and ranks of the leading causes of death among physicians by number of deaths, life years lost and working years lost. The percentages for life years lost

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4. Dublin, L. I., and Spiegelman, M.: Mortality of Medical Specialists, 1938-1942, J. A. M. A. **137**: 1519-1524 (Aug. 21) 1948.

5. Dublin, L. I., and Spiegelman, M.: The Longevity and Mortality of American Physicians, 1938-1942, J. A. M. A. **134**: 1211-1215 (Aug. 9) 1947.

were almost the same as the percentages for number of deaths. The major difference occurred in cerebrovascular disease, which accounted for 12.3 per cent of the deaths but only 10.0 per cent of the life years lost. This change was sufficient to result in the ranking of cerebrovascular disease third and cancer second. Nephritis and pneumonia ranked fifth and sixth respectively by life years lost, a reversal of their ranks based on number of deaths. The percentages themselves were rather small. Accidents retained fourth rank, but the percentage was higher for life years lost than for number (8.4 and 5.5). By working years lost heart disease retained first place with 35.6 per cent, and accidents moved into second place with 15.7 per cent. The percentage for cancer dropped to 8.6, to place it in third position, and the other causes trailed with relatively small percentages.

Because of the restricted age distribution of physicians a sharp differentiation between younger and older causes was not found.[6] This restricted the variability between the three measures, number of deaths, life years lost and working years lost. The death toll attributable to accidents was understated by number of deaths as compared with working years lost, and, conversely, the relative importance of heart disease was overstated by number of deaths when compared with working years lost. The high percentage attributed to accidents by working years lost was due to the low ages involved; the relatively high percentage of working years lost from deaths due to heart disease was maintained because of the large number of deaths involved in spite of the high average age at death.

It therefore seems safe to say that only accidents plays the role of an important younger cause of death among physicians and its importance is considerable in terms of working years lost; heart disease still constitutes a serious portion of the death problem for physicians; the physicians are alert to early recognition of their own symptoms of cancer; and the average age at death of physicians is no greater than that of the general population when adjusted for the differences in age and sex distributions. Although the causes of death are different for physicians, the net effect on length of life is negligible. The medical profession is apparently giving to the general population at least as much and at least as good medical care as it is giving itself.

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6. Causes of death are classified as younger and older causes on the basis of the average age at death.

Auscultation of the Heart.—To be sure, auscultation sheds very little light on whether the heart is failing or not. The only stethoscopic finding that indicates heart muscle incompetency is a diastolic gallop or possibly an alteration of ventricular systole. But what must not be overlooked is that many patients have organic heart disease, especially valvular disease, for many years before they have heart failure. They often want to know and need to know, during these early years, whether they do or do not suffer from heart disease. In some of them auscultation is the simplest and occasionally the only method of answering this question, which is important notwithstanding the fact that during the period of normal compensation one would not advise cardiac medication or unduly restrict activities if a faint murmur of rheumatic aortic insufficiency is found. Such a patient might need prophylactic penicillin therapy for the extraction of teeth to protect him against bacterial endocarditis if aortic insufficiency were present, and would not if the heart were perfectly normal. This and other matters of considerable importance to the health of the patient depend on the accurate diagnosis of apparently minor abnormalities that auscultation may reveal.—Samuel A. Levine, Auscultation of the Heart, *British Heart Journal,* October 1948.

PENICILLIN PLASMA CONCENTRATIONS

Increase and Prolongation with Carinamide and Newer Depot Penicillin Preparations

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and
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Although there is considerable difference of opinion regarding the therapeutic efficacy of bactericidal concentrations of penicillin for a brief time as opposed to the maintenance of bacteriostatic concentrations for prolonged periods, it is not within the province of this paper to discuss the relative merits of these two approaches to penicillin therapy. Suffice it to say that there are authoritative proponents of both methods of treatment and there are good reasons for wishing to achieve very high levels, amounts measured in whole units of penicillin per cubic centimeter, and for maintenance of lower concentrations of a few hundredths to a few tenths of a unit per cubic centimeter for prolonged periods. It is the purpose of this paper to show how both of these requirements of therapy can be achieved.

ORAL ADMINISTRATION OF CARINAMIDE WITH PENICILLIN GIVEN INTRAMUSCULARLY

Penicillin is rapidly excreted by the kidneys, the major portion being excreted by the renal tubules.[1] The rapidity of this excretion is such that approximately 60 per cent of an injected dose is excreted within one hour, and in each succeeding hour 70 per cent of the remaining penicillin is excreted.[2] This extreme rapidity with which penicillin is excreted by the renal tubules makes difficult the maintenance of high concentrations of the antibiotic agent, so it is natural that one approach to this problem has been the inhibition of the tubular excretion of the antibiotic. Iodopyracet injection U.S.P. (diodrast®) [3] and para-aminohippurate,[4] commonly employed to measure tubular excretory function, have been found to inhibit the excretion of penicillin. More recently, carinamide [5] has been shown to behave similarly, and this drug has the advantage of being effective when administered orally.[6]

Investigation of a large series of patients to whom different doses of carinamide have been administered has demonstrated that the effectiveness of various

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From the Philadelphia General Hospital. This work was supported in part by a grant from the Research Fund for Infectious Diseases, University of Pennsylvania.

1. Rants, L. A., and Kirby, W. M. M.: Absorption and Excretion of Penicillin Following Continuous Intravenous and Subcutaneous Administration, J. Clin. Investigation **23:** 789-794, 1944. Jensen, K. A.; Moller, K. O., and Overgaard, K.: Studies on the Excretion of Penicillin Through the Kidneys and the Mechanism of This Process, Acta pharmacol. et toxicol. **1:** 184-206, 1945.

2. Eagle, H.: The Varying Blood Levels Afforded by Penicillins F, G, K, and X in Rabbits and Man, J. Exper. Med. **85:** 163-173, 1947.

3. Rammelkamp, C. H., and Bradley, S. W.: Excretion of Penicillin in Man, Proc. Soc. Exper. Biol. & Med. **50:** 30-32, 1943.

4. Beyer, K. H.; Woodward, R.; Peters, L. Verwey, W. F., and Mattis, P. A.: The Prolongation of Penicillin Retention in the Body by Means of Para-Aminohippuric Acid, Science **100:** 107-108, 1944.

5. Carinamide is the generic name for 4'-carboxyphenylmethansulfonanalide, supplied under the trademark of staticin® by Sharp & Dohme, Inc., Glenolden, Pa. At the request of the Council on Pharmacy and Chemistry of the American Medical Association, the original designation "caronamide" has been changed to "carinamide."

6. Crosson, J. W.; Boger, W. P.; Shaw, C. C., and Miller, A. K.: Caronamide for Increasing Penicillin Plasma Concentrations in Man, J. A. M. A. **134:** 1528-1532 (Aug. 30) 1947. Boger, W. P., and Baker, R. M.: Comparison of Effect of Caronamide and Benzoic Acid on Penicillin Plasma Concentrations, Proc. Soc. Exper. Biol. & Med. **66:** 1-4, 1947. Seeler, A. O.; Wilcox, C., and Finland, M.: Enhancement of Blood Levels by Caronamide During Intramuscular Administration of Penicillin, J. Lab. & Clin. Med. **32:** 807-817, 1947.

dosage schedules (ranging from 1.5 to 4.0 Gm. every three hours) depends on the plasma concentration of carinamide attained. Since carinamide is rapidly absorbed from the gastrointestinal tract and is rapidly excreted by the kidneys by way of glomerular filtration, the level of the drug in the circulating body fluid is dependent in large measure on the patient's renal function. Persons having some degree of renal impairment may, therefore, show high concentrations of carinamide in plasma (20 to 30 mg. per hundred cubic centimeters) when 1.5 Gm. is given every third hour, whereas another may show a low concentration (1 to 5 mg. per hundred cubic centimeters) on the same schedule of therapy. The enhancement effect of carinamide on penicillin therapy is dependent on the attainment of an optimally inhibitory concentration of carinamide in in the plasma, currently stated to be 20 to 40 mg. per hundred cubic centimeters.[7] The daily dosage of carinamide required to maintain this concentration will depend both on the amount of drug given and the rate at which the patient's kidneys are able to eliminate carinamide. In the same patient small doses of the drug will produce partial, and larger doses complete, inhibition of excretion of penicillin by the renal tubules, the inhibition in either case being temporary and reversible.

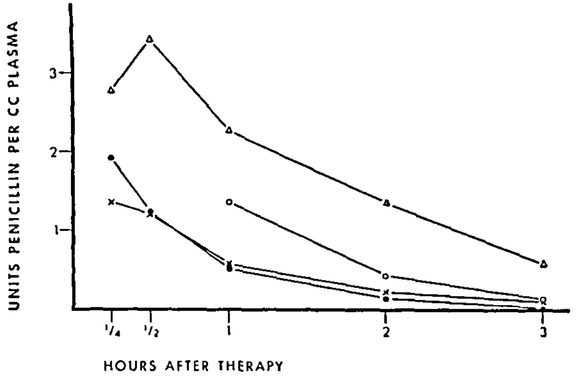

Fig. 1.—Graph showing effect of oral administration of carinamide on the intramuscular injection of 50,000 units of penicillin. The level of penicillin in the plasma without the use of carinamide is indicated by the solid dots. The level of penicillin in the plasma three hours after administration of 1.5 Gm. of the drug is indicated by circles, after 2.0 Gm., by X's, and after 3.0 Gm., by triangles.

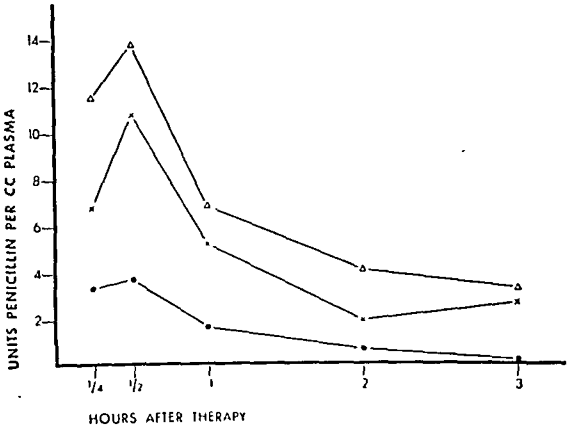

Fig. 2.—Graph showing effect of oral administration of carinamide on the intramuscular injection of 125,000 units of penicillin. The level of penicillin in the plasma without the use of carinamide is indicated by the solid dots. The level three hours after administration of 2 Gm. of carinamide is indicated by X's and after 3 Gm., by triangles.

The enhancing effect of carinamide on various schedules of penicillin therapy is shown in figures 1, 2, 3 and 4. It should be noted that crystalline sodium penicillin G in aqueous solution was used throughout these studies. The patients investigated had subacute bacterial endocarditis and were being treated with intermittent intramuscular injections of penicillin. Curves for response to doses were obtained in periods both with and without carinamide and in all instances the patients received penicillin or the combination of penicillin intramuscularly with carinamide orally for twenty-four hours prior to sampling of blood for penicillin assays. Each curve in the accompanying figures is an average for no less than 3 and no more than 10 patients. All penicillin assays were done by the modified serial dilution method of Rammelkamp.

Figure 1 shows that following the administration of 50,000 units of penicillin intramuscularly, the plasma penicillin concentration at one-half hour was 1.24 as compared with 3.43 units per cubic centimeter when 3 Gm. of carinamide was administered, approximately a threefold increase. At one hour, the difference was that between 0.54 and 2.28 units per cubic centimeter, a fourfold increase. At two hours, the difference was that between 0.17 and 1.37 units, an eightfold increase, and at three hours the difference was that between 0.02 and 0.61 unit per cubic centimeter with carinamide, a thirtyfold increase. Carinamide increased penicillin concentrations in the plasma by two to thirtyfold, the effect being most striking at the third hour following injection of the antibiotic agent. Lesser doses of 1.5 to 2.0 Gm. of carinamide every three hours gave in this group of patients less positive results because less than optimal plasma concentrations of carinamide resulted from these doses.

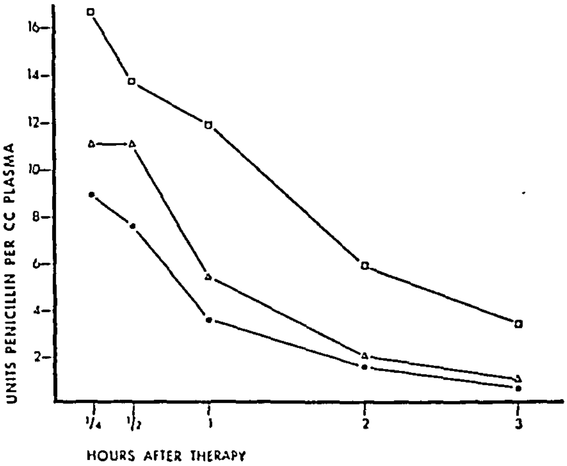

Fig. 3.—Graph showing effect of oral [illegible] on the intramuscular injection of 250,000 u[illegible] of penicillin in the plasma without the use o[illegible] the solid dots. The level three hours after administration of 3 Gm. of carinamide is indicated by triangles and after 4 Gm., by squares.

The effect of 2 and 3 Gm. doses of carinamide, administered orally every three hours, on 125,000 units of penicillin given intramuscularly is shown in figure 2. Two grams gave a threefold increase at one-half, one and two hours and a tenfold increase at three hours. With 3 Gm. of carinamide, the enhancement effects were threefold at one-half, fourfold at one, sixfold at two and thirteenfold at three hours.

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[7] Boger, W. P.; Miller, A. K.; Tillson, E. K., and Shaner, G. A.: Caronamide: Plasma Concentrations, Urinary Recoveries and Dosage, J. Lab. & Clin. Med. 33: 297-308, 1948.

As seen in figure 3, similar observations were made with 200,000 units of intramuscularly administered penicillin, the enhancing effects varying from three to tenfold, the greatest enhancement effect again being observed at the third hour.

Figure 4 shows that the concomitant administration of 3 Gm. of carinamide with each injection of penicillin at three hourly intervals resulted in the difference between 14 and 34 units per cubic centimeter at one-half hour and the difference between 2.5 and 17.5 units per cubic centimeter of plasma three hours after the intramuscular injection of 500,000 units of penicillin.

Figure 5 summarizes the foregoing results. With carinamide, concentrations resulting from the intramuscular injection of 50,000 units of penicillin approximated those obtained following 125,000 units of penicillin alone. One hundred twenty-five thousand units plus carinamide gave values approximating those obtained following 500,000 units of penicillin alone, and, when carinamide was given in conjunction with 500,000 units, the results were equal to or exceeded the levels reported following the administration of 1,000,000 units of crystalline penicillin in aqueous solution. At lower levels of penicillin administration, increased values in the blood can be obtained most readily by simply administering larger quantities of penicillin, but when the requirements of therapy are measured in millions of units per day, it is more economical to take advantage of the enhancing effect of carinamide than to give larger doses of the antibiotic substance. In our experience carinamide in adequate dosage has given enhancement effects regardless of the amount of penicillin administered, the increase of plasma concentrations being most striking at two and three hours after the injection of penicillin; the dosage of carinamide for any particular patient is constant for any amount of penicillin injected. A survey of nearly 2,000 patients has shown that the toxicity of carinamide is slight, the only notable exception to this statement being nausea and vomiting, nausea having occurred in 14 per cent of the patients and vomiting in 6 per cent.[8]

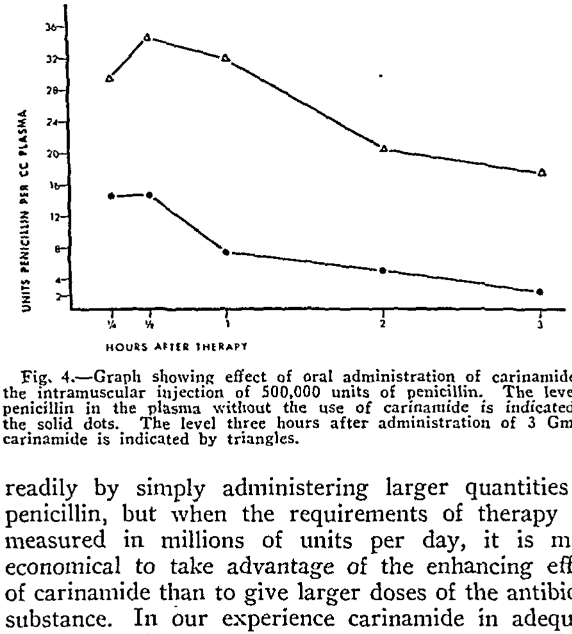

Fig. 4.—Graph showing effect of oral administration of carinamide on the intramuscular injection of 500,000 units of penicillin. The level of penicillin in the plasma without the use of carinamide is indicated by the solid dots. The level three hours after administration of 3 Gm. of carinamide is indicated by triangles.

DEPOT OR REPOSITORY PENICILLIN PREPARATIONS

Whereas the need of concentrations measured in units of penicillin per cubic centimeter is limited to the treatment of "infections relatively resistant to penicillin," a plasma concentration of a few hundredths, or certainly a few tenths, of a unit per cubic centimeter is sufficient for the treatment of the majority of commonly occurring infections. The depot or repository penicillin preparations, of which penicillin suspended in peanut oil and white wax U. S. P. is the prototype, appear to be applicable to the treatment of such infections. These preparations offset the rapid excretion of penicillin by the kidneys by slowing the rate of absorption from the site of their injection. Whereas the original interest in this type of preparation centered about the properties of the vehicle which might accomplish this retardation of absorption, much current interest is directed toward the investigation of salts of penicillin relatively insoluble in water, as well as toward improvement of suspending vehicles. Procaine penicillin has attracted wide attention and has, to date, proved to be the most practical of the insoluble salts of penicillin.

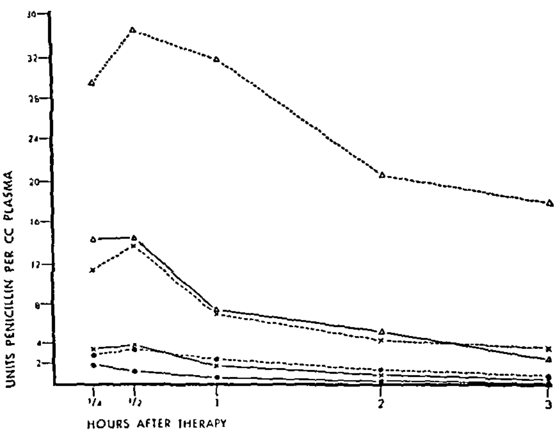

Fig. 5.—Graph showing effect of 3 Gm. of orally administered carinamide on various intramuscular doses of penicillin. The solid line shows the levels of penicillin in the plasma without carinamide and the broken line, the levels of penicillin with carinamide. The levels resulting from a dose of 500,000 units of penicillin are indicated by triangles, from 125,000 units, by X's and from 50,000 units, by solid dots.

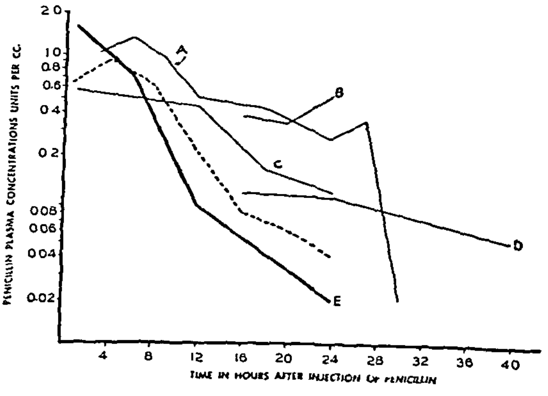

Fig. 6.—Graph showing plasma concentrations reported by various authors resulting from administration of 300,000 units of procaine penicillin in sesame oil indicated by the solid lines, and from penicillin in peanut oil and white wax, indicated by the broken line. *A* is the level reported by W. M. Herrell, D. R. Nichols and F. R. Heilman (Procaine Penicillin G: A New Salt of Penicillin Which Prolongs the *Action of* Penicillin, Proc. Staff Meet., Mayo Clin. **22:** 567-570 [Dec. 10] 1947), *B*, that reported by Welsh and others (personal communication *to the* authors), *C*, that reported by N. P. Sullivan, A. T. Symmes, H. E. Miller and H. W. Rhodehamel (A New Penicillin *for Prolonged Blood* Levels, Science **107:** 169-170 [Feb. 13] 1948), *D*, that reported by G. L. Hobby, E. Brown and R. A. Patelski (*Biological Activity* of Crystalline Procaine Penicillin in Vitro and in Vivo, Proc. Soc. Exper. Biol. & Med. **67:** *6-14 [Jan.] 1948), and E, that of W. P. Boger*, T. S. Oritt, H. L. Israel and H. E. Flippin (*Procaine Penicillin G* in Oil: I. Plasma Concentration; Preliminary Observations on Its Use in Pneumonia, Am. J. M. Sc. **215:** 250-256 [March] 1948).

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[8] Boger, W. P., and Crosson, J. W.: The Toxicity of Carinamide: A Review of 1,997 Patients, to be published.

The results obtained following the intramuscular injection of 300,000 units of procaine penicillin in sesame oil[9] are compared in figure 6 with (*a*) plasma concentrations resulting from 300,000 units of penicillin in peanut oil and white wax and with (*b*) the results obtained by other investigators with procaine penicillin in sesame oil. Our values (the heavy solid line) are somewhat lower than those reported by other workers, but they were obtained in normal, afebrile, ambulatory patients and are in sharp contrast with those recorded for patients suffering from lobar pneumonia who were given injections of the same preparation.

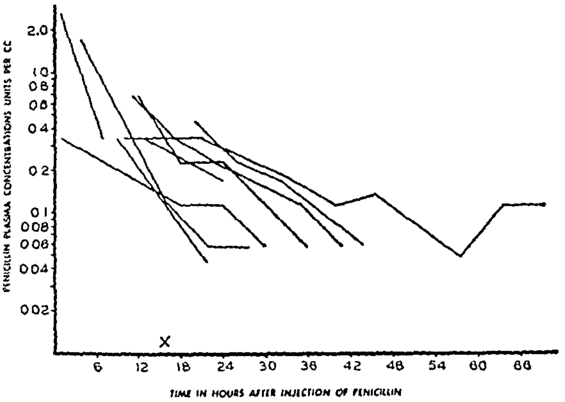

Fig. 7.—Each graph line corresponds with the plasma concentration observed in patients with pneumonia who received 300,000 units of procaine penicillin in sesame oil. The X indicates the concentration for a young man, aged 19, who failed to show any measurable quantity of penicillin in the plasma sixteen hours after its administration.

Each line in figure 7 corresponds with the plasma concentrations observed in a patient with pneumonia who had received 300,000 units of procaine penicillin suspended in sesame oil. Attention is called to the great individual variation observed. One patient, a woman 77 years of age, showed a concentration of 0.1 unit per cubic centimeter of plasma for seventy-two hours, whereas a young man, 19 years old (indicated by X on the figure), failed to show any measurable quantity of penicillin at sixteen hours.

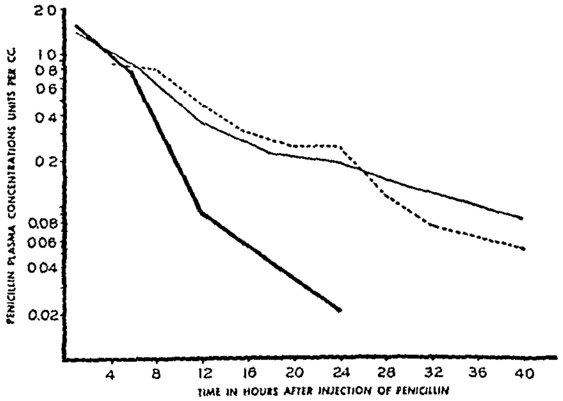

Fig. 8.—Graph showing penicillin levels in the plasma of normal persons and of patients with pneumonia after administration of 300,000 units of procaine penicillin in sesame oil. The heavy solid line indicates the level in normal persons, the thin solid line, that for patients with pneumonia, and the broken line, the average level reported by the various investigators.

In figure 8 the results obtained in these patients with pneumonia have been averaged and compared with (*a*) the average of results observed by other investigators (refer to figure 6) and (*b*) results observed by us in normal, afebrile and ambulatory patients. It seems clear that, whereas the plasma concentrations of penicillin following 300,000 units of procaine penicillin in sesame oil were maintained above a concentration of 0.03 unit per cubic centimeter for less than twenty-four hours in normal persons, the concentrations were maintained above 0.1 unit for forty hours when the same preparation of penicillin was administered to patients with pneumonia. The results observed in these patients agreed well with the average results of other investigators. It is suggested that illness modifies to a notable degree the period during which assayable quantities of penicillin can be demonstrated in the plasma: Results obtained should be evaluated, therefore, in the light of the type of patient to whom penicillin has been administered, as well as in terms of the type of penicillin used and the vehicle employed to suspend the penicillin.

Aluminum has the interesting property of retarding the absorption of many antigens, and it is natural that it should have been investigated in connection with efforts to delay the absorption of penicillin. In the same patients a comparison, as shown in figure 9, was made between the plasma concentration resulting from the intramuscular injection of 300,000 units of aluminum penicillinate suspended in peanut oil[10] and crystalline potassium penicillin suspended in aluminum monostearate and peanut oil.[11] The resulting concentrations are in turn compared with results following the injection of penicillin in oil and white wax and procaine penicillin in sesame oil. The results indicate that an aluminum gel employed as a vehicle serves to delay the absorption of penicillin from the site of its injection better than the incorporation of aluminum and penicillin in the same molecule. The difference was most striking during the first forty-eight hours, and, at the end of ninety-six hours, plasma concentrations of penicillin were approximately 0.03 unit per cubic centimeter with both preparations.

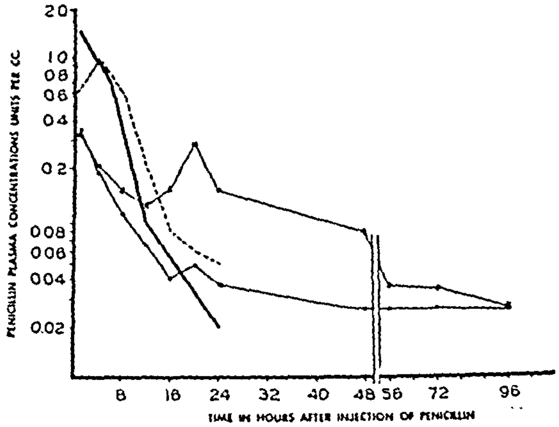

Fig. 9.—Graph showing penicillin levels in the plasma of patients given 300,000 units of both crystalline potassium penicillin in aluminum monostearate and peanut oil and aluminum penicillinate in peanut oil. The X's indicate the level with potassium penicillin in aluminum monostearate and peanut oil; the solid dots, that with aluminum penicillinate in peanut oil; the heavy solid line, that with procaine penicillin in sesame oil, and the heavy broken line, that with penicillin in peanut oil and white wax.

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[9] Procaine penicillin suspended in peanut oil, duracillin,® was supplied by Eli Lilly & Company, Indianapolis 6.

[10] The aluminum penicillinate used in this investigation was supplied by Hynson, Westcott & Dunning, Inc., Baltimore. Aluminum penicillinate is a trivalent aluminum salt and not a mixture.

[11] This investigational material was supplied by the Medical Research Division of Sharp & Dohme, Inc., Glenolden, Pa.

Procaine penicillin was suspended in the same aluminum monostearate and peanut oil vehicle that gave this excellent result with crystalline potassium penicillin, and prolongation of measurable penicillin plasma concentrations for one hundred and forty-four hours (six days) was observed, as may be seen in figure 10.

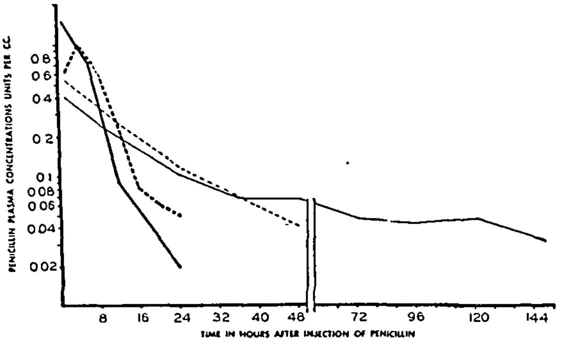

Fig. 10.—Graph showing penicillin levels in the plasma of patients given 300,000 units of procaine penicillin suspended in aluminum monostearate and peanut oil. The results of the present study are indicated by the light solid line, the results reported in the literature by the light broken line, the results obtained on administration of procaine penicillin in sesame oil by the heavy solid line and those obtained on administration of penicillin in peanut oil and white wax by the heavy broken line.

There is a good correlation between our results (the light solid line) and those reported by other investigators who studied a preparation of like composition (the light broken line). These results are once again compared with those obtained with procaine penicillin suspended in sesame oil (heavy solid line) and penicillin in oil and white wax (heavy broken line).

Figure 11 shows the extent to which plasma concentrations resulting from 300,000 units of penicillin are modified by both the salt of penicillin employed and the vehicle used to suspend the particular penicillin salt. Each line represents the average plasma concentrations of no less than 9 and no more than 100 patients. All these data were obtained in normal, afebrile, ambulatory persons, a fact worthy of emphasis in view of the difference between results in normal persons and those in patients with pneumonia indicated earlier in this presentation (fig. 8). Three hundred thousand units of crystalline penicillin in aqueous solution can be expended rather lavishly to give transitory and relatively high penicillin concentrations, or it can be suspended in an aluminum monostearate gel to give lesser concentrations maintained over many hours. The procaine salt of penicillin, comparatively insoluble in water, can be suspended in sesame oil to give plasma concentrations for somewhat less than twenty-four hours, or it can be suspended in an aluminum monostearate gel to give measurable amounts of antibiotic activity in the plasma for from four to six days. Accepting as a criterion the plasma concentration of 0.03 unit per cubic centimeter that has been given wide recognition as being therapeutically significant, a single injection of 300,000 units of procaine penicillin in aluminum monostearate and peanut oil results in effective therapy of many infections for four to six days. This has been confirmed by the successful treatment of a series of patients with pneumonia with a single injection of 300,000 units of this penicillin preparation.[12] It should be stated that all the plasma concentrations of penicillin shown in figures 7, 8, 9, 10 and 11 were determined by a modification of the serial dilution method of Rammelkamp, and the presence of penicillin was established by duplicate determinations in which penicillin activity was inhibited by penicillinase.. These values have not been corrected for plasma binding, a correction that would nearly double the values here presented.

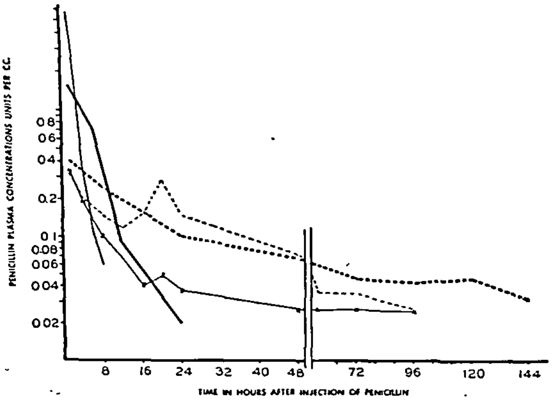

Fig. 11.—Average penicillin concentrations in the plasma of patients given 300,000 units of various penicillin preparations. The light solid line indicates the level from crystalline penicillin in aqueous solution; the heavy solid line, that for procaine penicillin in sesame oil; the light broken line, that for potassium penicillin in aluminum monostearate and peanut oil; the heavy broken line that for procaine penicillin in aluminum monostearate and peanut oil, and the X's, that for aluminum penicillinate in peanut oil.

CONCLUSIONS

Any desired concentration of penicillin can be achieved by the simple expedient of using enough penicillin to attain it, but, when the desired concentration requires the use of millions of units of penicillin, it is both reasonable and economical to employ carinamide. Adequate doses of carinamide administered orally in conjunction with penicillin result in two to thirtyfold enhancement of plasma concentrations following any given dose of penicillin. This drug produces its effect by physiologically inhibiting the renal tubular excretion of penicillin.

Repository penicillin preparations depend for their efficacy on a delayed rate of absorption of penicillin from the site of injection. Of those preparations currently available, procaine penicillin in aluminum monostearate gel and peanut oil gives measurable quantities of penicillin in the plasma over the longest period, four to six days.

ABSTRACT OF DISCUSSION

Dr. Wallace E. Herrell, Rochester, Minn.: Dr. Boger divided the presentation into two parts. One has to do with the elevation of plasma levels of penicillin by the blocking of renal excretion. Several drugs for the accomplishment of this purpose have been tried, namely, iodopyracet injection and para-aminohippuric acid, but carinamide is the most effective to date. My colleagues and I carried out several studies on carinamide. We were using the recommended dose of 1.5 Gm. every three hours but were unable to demonstrate any notable retention of penicillin. It was only after we used the larger dose, namely, 3 Gm. every three hours, such as Dr. Boger and Dr. Flippin recommend, that we obtained similar results. We did not use the material except in special situations; for example, in a case of subacute bacterial endocarditis or a similar infection which is fairly resistant to penicillin. At times, the use of carinamide makes it possible to treat these infections successfully and, at the same time, to conserve the supply of penicillin. This is of economic importance to the patient. I am sure Dr. Boger will agree that carinamide is not a substance to be used routinely. He mentioned the toxic reactions which may be encountered. Nausea and vomiting are troublesome. It is difficult for a severely ill patient, for example, one with subacute bacterial endocarditis, to take six tablets of this material every three hours. The second part of this presentation deals with prolongation of the action of penicillin by means of so-called depot penicillin preparations. We have been impressed with results after using procaine penicillin in sesame oil. In several thousand injections of this material, we have seen not more than half a dozen reactions. The material appears to have a threefold effect: (1) prolongation of action, (2) an anesthetic effect and (3) some so-called antihistaminic effect, since it appears that the allergic reactions are definitely decreased. My colleagues, Dr. Nichols and Dr. Heilman, have also investigated the possibilities of procaine penicillin to which has been added 2 per cent aluminum monostearate. I believe that the concentrations of this preparation persist in the blood for an average of about seventy-two hours. They have not found the prolongation to last for four or five days. This is not a contradiction of Dr. Boger's results; it is simply a matter of our experience. I am sure he will agree that all these preparations differ greatly and that, of course, the matter of individual variations among patients must be considered. Recently you have heard about the treatment of patients with aqueous solution of penicillin, an injection of which is given once daily. This method is effective when the condition treated is pneumonia or some Neisseria infection. However, I should much dislike to leave the impression that the injection of aqueous penicillin solution once or twice daily is a satisfactory method of treating severe or potentially severe infections, such as bacteremia or cellulitis with impending bacteremia. If the matter were that simple, there would be no need for excellent studies such as these presented by Dr. Boger and his colleagues.

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[12] Boger, W. P.; Ortt, J. E.; Israel, H. L., and Flippin, H. F.: Procaine Penicillin G in Oil: I. Plasma Concentrations; Preliminary Observations on Its Use in Pneumonia, Am. J. M. Sc. 215: 250-256, 1948.

Dr. Boger: The application of carinamide to penicillin therapy in general is indeed in question. Unless the daily requirement of penicillin is large, in excess of 500,000 units per day, the combined use of carinamide and penicillin intramuscularly is not justified. We should not wish to see carinamide used routinely. Those interested in improving depot penicillin preparations recognize that it is not alone the salt of penicillin or the vehicle but also the size of the penicillin particles that determines duration of penicillin levels in the blood. The influence of the size of crystal is not well understood, since in some preparations large crystals prolong levels and in others small crystals are more effective. A question frequently asked is whether or not carinamide has an enhancing effect on depot penicillins. It does, but in our opinion this is not a good application of carinamide. From an injection of a depot preparation penicillin is absorbed irregularly; plasma levels do not fall along a predictable curve as they do after an intramuscular injection of aqueous solution of penicillin; further, such preparations give low concentrations of penicillin in the blood, and these levels, though they be doubled or quadrupled, represent differences in concentration that fall within the error of methods of penicillin assay employed. The toxicity of carinamide has been mentioned. The daily dose of the drug is large, and nausea and vomiting are annoying, but we do not believe they constitute serious deterrents to the use of the drug.

The Aztecs and Smallpox.—In 1520 when the Spaniards came to Mexico, one of the Negro slaves accompanying the army transmitted smallpox to the Mexican Indians. Within a few years, more than 3,000,000 Indians died of smallpox, and the once mighty Aztec population was reduced to a small group of shaken beggars.—R. L. Mayer, Epidemics and Bacteriological Warfare, *The Scientific Monthly,* November 1948.

SYNDROME OF SALT DEPLETION

Induced by a Regimen of Sodium Restriction and Sodium Diuresis

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and
JACOB ZATUCHNI, M.D.
Philadelphia

The recognition of the importance of the retention of sodium in the aggravation or in the production of the phenomena of congestive heart failure has directed attention to methods that will diminish the sodium content of the body in the therapy of disorders characterized by these phenomena. Two procedures are used to accomplish this purpose. One procedure consists of the use of a diet that is extremely poor in salt. It is now possible to remove salt which is naturally present in foods so that diets may be prescribed that have all the essential foodstuffs and yet are extremely poor in sodium. The other procedure is the use of powerful diuretics that produce a disproportionately greater excretion of sodium chloride than of water. In clinical practice, both procedures are frequently used together. There can be little doubt of the efficacy of this regimen and that the introduction of this therapy represents a great advance in the treatment of heart failure. It is our impression that this regimen, judiciously used, has considerably improved the prognosis and relieved the symptoms of persons suffering from congestive heart failure. Nevertheless, in recent months we have seen increasing instances of persons with hypertension or with congestive heart failure who, while receiving intensive therapy of this sort, experienced symptoms that are very similar if not identical with those of salt depletion as seen in the noncardiac patient who is subjected to considerable loss of sodium during a short interval. We were particularly impressed by 4 deaths occurring in one month that we believe were due in great part, if not entirely, to this therapy. The purpose of this report is to call attention to the possible disastrous effects and even fatal outcome in persons with congestive heart failure and with hypertension who have been overtreated with mercurial diuretics, with excessive salt restriction, or with both procedures.

REPORT OF CASES

Case 1.—S. G., a 52 year old man, had had rheumatic heart disease for many years. For many months, he had been on a salt-poor diet and for a few weeks had received intramuscular injections of 2 cc. of meralluride sodium solution (mercuhydrin sodium solution®) twice weekly. He had also been given a maintenance dose of digitoxin. On April 28, 1948, he became nauseated, started to hiccough and became short of breath. He was admitted to the hospital with a diagnosis of congestive heart failure and possible pneumonitis. Physical examination revealed typical rheumatic mitral stenosis; the liver was palpated 5 fingerbreadths below the costal cage, and the neck veins bulged. His skin was cold and moist. The pulse was feeble and rapid. He was dyspneic. He was given oxygen, a maintenance dose of digitalis, ammonium chloride, 1 Gm. four times a day, and penicillin. He remained on a salt-poor diet. Because of persistent dyspnea and restlessness, he was given 2 cc. of meralluride sodium solution intramuscularly on April 28. On April 29, vomiting began. Blood pressure cuffs inflated above the venous pressure were placed on all four extremities for several hours on each of the following two days. On April 30, the blood urea nitrogen was 98 mg. per hundred cubic centimeters of blood. On May 5, 2 cc. of meralluride sodium solution and 1,000 cc. of 5 per cent dextrose

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in distilled water were given intravenously. On May 7, 2 cc. of meralluride sodium solution were again given intravenously and a venesection was performed. The blood pressure was unobtainable. Later that day, the blood urea nitrogen was 65 mg. and the blood chloride 306 mg. per hundred cubic centimeters of blood. The patient died soon after intravenous administration of isotonic sodium chloride solution had been started.

Comment.—The high level of urea nitrogen in the blood soon after the patient's admission should have led to the diagnosis of dehydration or primary renal disease. Either diagnosis would have contraindicated further use of mercurial diuretics or other drastic attempts at dehydration that were continued in an attempt to control dyspnea that was apparently regarded as due to severe pulmonary congestion.

CASE 2.—N. R., a 47 year old Negro, had had rheumatic heart disease for years, but symptoms of shortness of breath first developed in January 1948. He entered the hospital on April 5, to determine the cause of pain in the epigastrium and of loss of appetite. He was not acutely ill. Results of studies of the gastrointestinal tract and of the gallbladder were negative. The pain was apparently thought to be due to a congested liver. On April 10, ammonium chloride therapy, 1 Gm. four times a day, was started; 2 cc. of meralluride sodium solution were given on April 11, 13 and 17. The patient became dyspneic and toxic. On April 22, 1,000 cc. of 5 per cent dextrose in distilled water were given intravenously. The same day, the blood urea nitrogen was 88 mg. per hundred cubic centimeters of blood. On April 24, the blood chloride was 311 mg. per hundred cubic centimeters of blood. Intravenous administration of 5 per cent dextrose in isotonic sodium chloride solution was started on April 27, but the patient died on the following day.

Comment.—This patient entered the hospital primarily for diagnosis. During an intensive dehydration regimen, he became toxic and died.

CASE 3.—J. W., a 41 year old man, had had rheumatic heart disease for two years. Symptoms of congestive heart failure developed and the patient was hospitalized at another institution, where he was digitalized, placed on a salt-poor diet and given frequent (daily ?) injections of meralluride sodium solution. At the end of three weeks, constant nausea and vomiting developed. He was discharged at his own request. At home, the same dehydrating measures were used. Nausea and vomiting became worse. He was admitted to the Temple University Hospital on April 7. He had typical rheumatic mitral stenosis, cold clammy skin and a feeble pulse. The systolic blood pressure was at times unobtainable, and it never was above 100 mm. of mercury. The liver was enlarged 5 fingerbreadths below the costal cage, and the neck veins were distended. The patient was dyspneic, nauseated and retched and vomited. Occasionally he expectorated blood. He was placed in an oxygen tent. Treatment with digitalis was continued. Intramuscular and intravenous injections of vitamins were given. The diet remained salt poor. Because food taken by mouth could not be retained, protein hydrolysates (amigen®), in 500 cc. amounts, were cautiously given intravenously and tolerated surprisingly well. On May 12, the blood chloride was 284 mg. per hundred cubic centimeters of blood. Intravenous administration of isotonic sodium chloride solution was cautiously started on that day. He received 250 cc. on May 14, and on May 16, 500 cc. were given. The blood chlorides remained low, being 288 mg. on May 13 and 285 mg. on May 14. Blood sodium on May 14 was 127 milliequivalents per liter of blood (normal value in our laboratory is 140 to 150 milliequivalents per liter). The week end interfered with further laboratory studies. However, after the first injection of isotonic sodium chloride solution the patient appeared more restful. The skin became warm and lost its moisture. The systolic pressure rose above 100 mm. of mercury. On May 14 he began to retain food by mouth. On Sunday, May 16, he lapsed into coma; he died the following day, apparently of a cerebral accident.

Comment.—This case illustrates that a low blood chloride level and, indeed, a low blood sodium level may be present with the phenomena of congestive heart failure. In spite of the extremely low value for sodium, the liver and neck veins were decidedly engorged.

CASE 4.—J. T., a 35 year old man, had had heart disease for many years. The nature of the heart disease was unknown. For six months he had been treated with a salt-poor diet and injections of meralluride sodium solution and digitoxin. These injections were at first given once in two weeks and then increased in frequency to twice a week. Fatigue and exertional dyspnea increased. He was admitted to the hospital on April 13, 1948. Treatment with the salt-poor diet and digitoxin (0.2 mg. daily) was continued, and 2 cc. of meralluride sodium solution were given intravenously daily from the day of admission to April 24. Dyspnea slowly increased. The patient became very thirsty, but the throat was extremely dry and he could swallow only with difficulty. The blood urea nitrogen rose to 65 mg. per hundred cubic centimeters of blood. Pulmonary infarction developed; the patient became icteric and died on May 2.

Comment.—Unfortunately, no blood chloride determination was made. There can be no doubt, however, from the clinical picture and the blood urea nitrogen that he was dehydrated. Pulmonary infarction was the terminal cause of death, but dehydration measures not only did not relieve the dyspnea but actually increased it and made the patient more toxic. It appears to us that he would have been well on the road to death even in the absence of pulmonary infarction if the therapeutic regimen had been continued.

These 4 patients all died. We have seen many other instances of this condition in which the syndrome of hyponatremia was recognized quickly and the patients recovered. The following abstracts are illustrative.

CASE 5.—H. S., a 39 year old woman, had had rheumatic heart disease for years and had been on a salt-poor diet for many months. She was admitted to the hospital because of complicating pneumonia, which was controlled within two days by penicillin. Because of persistent slight dyspnea, she was given ammonium chloride, 1 Gm. four times a day, and, two days later, 1 cc. of meralluride sodium solution intramuscularly. A copious diuresis occurred. That evening she became nauseated and pale. The skin was cold and clammy. The blood pressure had dropped below its normal level. The patient appeared to be going into shock. A small amount of salt by mouth was suggested. The following morning, when the patient had already lost the acute symptoms, the blood urea nitrogen was 48 mg. and the chloride 339 mg. per hundred cubic centimeters of blood. Two days later, the blood urea nitrogen and chlorides had returned to normal.

CASE 6.—A. J., a 40 year old man, was admitted for sympathectomy for severe hypertension. He had previously been placed on a salt-poor diet and had been digitalized. One week after the first stage, increasing fatigue and apathy developed. The blood urea nitrogen was 70 mg. and the blood chloride 301 mg. per hundred cubic centimeters of blood. Treatment with 500 cc. of blood and an unknown quantity of isotonic sodium chloride solution restored his previous vigor and normal blood urea nitrogen and chlorides. One week after the second stage, he was again weak and apathetic and could not be persuaded to leave the bed. The blood urea nitrogen was 67 mg. and the blood chlorides 312 mg. per hundred cubic centimeters of blood. He was given 1,000 cc. of isotonic sodium chloride solution intravenously. The patient got out of bed that afternoon and was discharged five days later free of symptoms and with normal blood urea nitrogen and chlorides.

CASE 7.—G. W., a 49 year old man, had had hypertension for several years and had had two cerebral hemorrhages that had left him with a hemiplegia. He had been placed on a salt-poor diet. He was admitted to the hospital because of temperature of 99 to 100 F. and a mild infection of the urinary tract. The salt-poor diet was continued. Five per cent dextrose in distilled water was given intravenously to promote diuresis. Penicillin therapy quickly brought the infection under control, but the patient became irrational and semicomatose. On April 22, 1948, he appeared moribund. The blood urea nitrogen was 106 mg. and the creatine 4.6 mg. per hundred cubic centimeters of blood. His throat was parched, and it was impossible for him to swallow water in spite of extreme thirst. Intravenous administration of isotonic sodium chloride solution was begun on April 30. It was continued daily in amounts of 1,000 cc. He quickly improved. On May 9, the blood urea nitrogen was 14 mg. and the chloride 338 mg. per hundred cubic centimeters of blood. He was rational and was discharged free of symptoms except for the residual hemiplegia.

COMMENT

One of us (L. A. S.) had under his care a number of middle-aged women with rheumatic heart disease who had palpable livers and distended neck veins. They were semiinvalids but remained unchanged physically for longer than ten years. Attempts to dehydrate them with mercurial diuretics invariably led to symptoms of nausea, weakness and faintness, so that they would not permit such attempts again. In one week 3 patients were seen in consultation whose symptoms of nausea and fatigue were abolished by the withholding of mercurials which had been given to them repeatedly. In two instances, the family physician had withheld digitalis because it was thought that it was the offending drug.

The recognition of the syndrome of hyponatremia in persons with congestive heart failure and with hypertension following the institution of a salt-poor diet and the use of mercurial diuretics is not new. For a decade following the introduction of these powerful diuretics many papers appeared in the literature emphasizing the potential dangers of this type of therapy with particular reference to salt depletion and dehydration. Thus, Binger and Keith[1] reported that, of 216 persons with heart failure so treated, an increase in blood urea nitrogen developed in 89. Steiglitz[2] commented on the fact that many patients appeared more intoxicated after diuresis than when they were edematous. Srnetz[3] stressed the appearance of somnolence and mental confusion. Poll and Stern[4] observed the symptoms of weakness, restlessness, mental confusion, apathy and even coma and death following excessive diuresis. Klinghoffer[5] observed nausea, anorexia, muscle cramps and vascular collapse. Evans[6] was able to abolish the symptoms by stopping the use of diuretics and increasing fluids. DeGraff and Nadler,[7] in their review of the toxic effects of mercurials in human beings, mentioned the ocurrence of chloride depletion and azotemia after diuresis.

It would appear that, if untoward effects of dehydrating and desalting therapy were observed soon after the introduction of the mercurial diuretics, they should be more prevalent today, not only because the mercurials are used *more frequently and in larger doses today* but because diets are available with a much lower sodium content now than at any other previous time. We believe that the untoward effects are more prevalent and that their nonrecognition is due to preoccupation with the concept that congestive heart failure can exist only in the presence of excessive sodium retention. This concept was clearly formulated by Dock,[8] who stated, "Death from congestive failure like death from diabetic coma is now preventable. . . . Both (patients with diabetes and congestive heart failure) should be reduced to muscle and bone) with minimal *panniculus*. . . . the symptoms (of congestive heart failure) can be controlled by reducing the blood volume and by maintaining normal body weight by diet and other methods of lowering the sodium available to the body."

Although we do not agree with the ingenious analogy that Dock[8] made between diabetes and congestive heart failure, those who do must admit that drastic restriction of sugar not only does not cure all diabetic persons but may harm many, and that, as Sunderman[9] has shown, dosages of insulin which precipitously drop the blood sugar level may produce the symptoms of insulin shock even though the resulting blood sugar is still above normal.

The concept of the innocuousness of the persistence in a regimen of sodium restriction and sodium diuresis is apparently based on implicit assumptions (1) that the regimen itself is not harmful, (2) that the water and salt mechanisms of the body are not disturbed and (3) that a normal venous pressure and normal blood volume are optimal for persons with heart disease.

The toxic effects of the mercurials have been reviewed by DeGraff and Nadler.[7] McCance[10] has described the toxic effects of salt restriction in normal human beings.

The water and salt mechanisms of the body are disturbed in congestive failure. Merrill[11] has shown that at least in some instances of cardiac failure glomerular filtration is diminished and tubular reabsorption of sodium is increased. It has not been shown whether glomerular filtration is decreased because of a uniform decrease in filtration in each glomerulus or whether there are less glomeruli active at one time. Burch[12] has shown that mercurial diuretics reverse this process of sodium retention and cause a disproportionately greater excretion of sodium. As the time approaches when there is no longer sodium retention, the salt-poor diet exerts a severe strain on tubular cellular function. Newburgh[13] recently reemphasized that a salt-poor diet may require work of the tubular cells that they are incapable of performing. If this occurs, salt leakage continues, drastic dehydration occurs, uremia and the picture of shock may appear. This sequence of events invariably takes place if preexisting renal disease is present. It not uncommonly takes place with presumably preexisting normal renal function if the dehydration regimen is severe. The effects of diminished blood supply produced by dehydration on other organs in the body, particularly the adrenals, have not as yet even been explored. The deranged concentration of blood electrolytes, the autointoxication and the acidosis all further impair cardiac function and may lead to increasing dyspnea that cannot be corrected by more sodium restriction or sodium diuresis. In addition, the venous pressure drops. According to Star-

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1. Binger, N. W., and Keith, N. W.: Effects of Diuretics in Different Types of Edema, J. A. M. A. **101:** 2009-2016 (Dec. 23) 1933.
2. Steiglitz, E. J., in discussion on Binger and Keith.[1]
3. Srnetz, cited by Poll and Stern.[4]
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6. Evans, W., and Paxon, T.: Comparison of Mercurial Diuretics Used in Heart Failure, Brit. Heart J. **3:** 112-120 (April) 1941.
7. DeGraff, A. C., and Nadler, J. E.: Review of Toxic Manifestations of Mercurial Diuretics, J. A. M. A. **119:** 1006-1011 (July 25) 1942.
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10. McCance, R. A.: Experimental Sodium Deficiency in Man, Proc. Roy. Soc., London, s.B **119:** 245-208 (Feb. 1) 1936.
11. Merrill, A. J.: Edema and Decreased Renal Blood Flow in Patients with Chronic Congestive Heart Failure: Evidence of "Forward Failure" as Primary Cause of Edema, J. Clin. Investigation **25:** 389-400 (May) 1946.
12. Burch, G. E., and Reaser, P. B.: Radiosodium Tracer Studies in Congestive Heart Failure, Proc. Soc. Exper. Biol. & Med. **63:** 543-546 (Dec.) 1946.
13. Newburgh, L. H.: Renal Tubule Work: Its Significance for the Clinician, Bull. New York Acad. Med. **24:** 137-146 (March) 1948.

ling's law, other things being equal venous filling determines cardiac output. This raises the question of what is the optimal venous pressure for persons with cardiac disease. McMichael[14] pointed out that there are some persons with cardiac disease who have dyspnea, increased venous pressure and even edema who are made much worse by attempts to reduce their venous pressure. Cardiac disease secondary to severe anemia and pulmonary disease are two of these types. Anemia is not uncommon in rheumatic persons. Parker and Weiss[15] have shown how common and how severe pulmonary vascular disease may be in persons with rheumatic heart disease. Indeed, an occasional pathologist has been so impressed with how severe pulmonary disease was and how insignificant the cardiac disease was in persons with rheumatic heart disease that failure was regarded as due primarily to the pulmonary disease rather than the heart disease. Perhaps this fact explains why some elderly rheumatic persons with mild but very slowly progressive failure feel worse after the use of a mercurial diuretic. Weiss and Robb[16] also stated that 63 per cent of their patients with cardiac asthma had the anatomic characteristics of pulmonary emphysema. Obviously, if mechanisms for a high output type of failure are partly present in the rheumatic or hypertensive persons, drastic attempts to reduce the venous pressure to normal must lead to harm. This, of course, is especially true for mechanical causes of venous hypertension such as tricuspid stenosis or constrictive pericarditis.

Because there are no simple rules of thumb by which one can distinguish the therapeutic from the harmful effects of this regimen, we strongly urge that careful attention be paid to the symptoms of the patient; these symptoms must be carefully and thoroughly evaluated. Weakness, lassitude, anorexia, nausea, vomiting, restlessness, thirst not relieved by plain water, apathy, mental confusion, fall in blood pressure, increase in pulse rate, diminution in the volume of the pulse, clammy skin, shock and coma are all symptoms or signs which may be present in excessive salt depletion. Any one may be due to other causes, such as excessive sedation, digitalis, unrelated infection, thromboembolic phenomena or natural progression of the cardiac disease.

It is for these reasons that the physician must use all his faculties and help from the laboratory in arriving at the cause of the symptoms and not simply increase the degree of sodium loss.

Finally, we should like to reiterate what was said at the beginning of this paper. This work is not to be regarded as an indictment of the regimen of sodium restriction and sodium diuresis in treatment of congestive heart failure or hypertension. Our purpose is simply to point out that there are limitations to its use and, if these limitations are not recognized, not only will our patients be harmed but many may die.

SUMMARY AND CONCLUSIONS

Seven cases are briefly reported that demonstrate some of the untoward effects, including 4 fatalities, which may occur in cardiac patients subjected to a regimen of sodium restriction and sodium diuresis. The blood urea nitrogen was determined in 7 patients, the blood chlorides in 6 patients and the blood sodium in 1 patient while the phenomena of congestive heart failure were present and while this regimen was still being used.

The blood chloride and the blood sodium were reduced and the blood urea nitrogen was elevated in each instance. Some of the mechanisms which may produce these untoward effects are discussed. The great advance in the therapy of heart disease by the introduction of a regimen of sodium restriction and sodium diuresis is emphasized, but the importance of individualizing this therapy and of being alert to the possibility of the patient's having passed from the therapeutic to the toxic stage of this therapy is particularly stressed.

NOTE.—No salt substitute was used by any of these patients, so that neither lithium nor potassium intoxication had to be considered as possible aggravating factors.

Special Article

PRIMER ON THE RHEUMATIC DISEASES

PREPARED BY A COMMITTEE OF THE AMERICAN RHEUMATISM ASSOCIATION

(Continued from page 1076)

RHEUMATOID ARTHRITIS

ETIOLOGY

Rheumatoid arthritis is a disease of unknown causation. Many theories of causation have been proposed but none has withstood critical evaluation. Some known facts are that it has a slight tendency to be familial; the sex incidence in peripheral rheumatoid arthritis is 3 women to 1 man, and 80 per cent of the cases occur between the ages of 25 to 50, with the peak at 35 to 40. According to a number of current theories, rheumatoid arthritis is variously claimed to be (1) an infectious disease, (2) a metabolic disease, (3) a disease with an endocrinologic basis, (4) a disease of the peripheral circulatory apparatus, (5) a disease of the nervous system, (6) a psychogenic disease and (7) a disease of hypersensitivity. Such a list as this indicates how little actually is known about the cause of rheumatoid arthritis.

PATHOLOGY

Rheumatoid arthritis is invariably described as a systemic disorder. Scudamore, as early as 1827, pointed out that the disease is essentially one of dense white fibrous tissue. More recently it has been suggested that the disease affects primarily the interfibrillar substance of connective tissue. This substance is a colloidal, jelly-like material existing in the interstices between cells and fibers of mesenchymal origin. This concept is consistent with the widespread nature of the lesions in rheumatoid arthritis.

Articular Lesions.—The articular lesions vary greatly with the stage and severity of the disease. Early in the disease there is proliferation of the synovial cells with thickening of the synovial lining. The cartilage loses its normal luster and may show superficial ulcerations. As the disease progresses, the articular cartilage appears grayish white, is softer and may contain larger ulcerations. Proliferating connective tissue is also seen in the subchondral marrow spaces. The cartilage is surrounded by granulation tissue and may be destroyed. Fibrous ankylosis may occur and in time may become bony ankylosis. Late in the disease the bony cortex of the adjoining bones is reduced in thickness and the trabeculae are fewer in number.

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Microscopically, in the active phase of the disease the synovial tissue shows proliferation of the lining cells, increased vascularity and varying grades of cellular infiltration which may or may not be perivascular. The majority of the infiltrating cells are lymphocytes. Focal collections of lymphocytes, whether perivascular or not, are seen frequently. Similar cellular infiltrations may be observed in the bone marrow. These changes are not specific, and an absolute diagnosis is often impossible from the microscopic appearance alone.

Subcutaneous Nodules.—The subcutaneous nodules of rheumatoid arthritis constitute the one most characteristic pathologic lesion of the disease. These are similar to the nodules of rheumatic fever, and many observers believe that pathologically the nodules in the two diseases are essentially the same and that such differences as occur are explainable on the basis of the greater age and size of those of rheumatoid arthritis. Exudation of plasma and blood cellular constituents is a prominent feature of rheumatic fever nodules, which contain, in addition, small focal areas resembling Aschoff bodies. In the nodules of rheumatoid arthritis proliferation and degeneration predominate, Aschoff-like nodules are rare and exudation is not a prominent feature. The vascular changes seen in such nodules vary from perivascular infiltration of inflammatory cells to diffuse inflammation and degeneration of the entire wall. Thrombosis is observed more commonly in the nodules of rheumatoid arthritis.

Infiltrations in Skeletal Muscles.—Lymphocytic infiltrations in the skeletal muscles have been described in rheumatoid arthritis. They have also been found in other diseases, however, and cannot be considered pathologically specific. Similar collections of lymphocytes have been described in the sheaths of large peripheral nerves in rheumatoid arthritis.

Extra-Articular Lesions.—Extra-articular lesions have been noted in rare instances in the pleura and pericardium, and adherent pericarditis is occasionally encountered. Signs of cardiac valvulitis are found no more frequently in life in patients with rheumatoid arthritis than in the general population. At autopsy there are conflicting reports as to the incidence of rheumatic-fever-like lesions in the hearts of patients with rheumatoid arthritis, figures varying from 53 per cent to less than 1 per cent.

CLINICAL FEATURES

Onset.—Many authors refer to prodromal symptoms, but, as the onset of the disease is frequently insidious, it is impossible to be sure that these symptoms do not actually constitute a part of the disease itself. In many instances the initial complaints are those of fatigue, exhaustion, lassitude, vasomotor disturbances, muscular stiffness, loss of weight and general debility. Since similar symptoms become more pronounced in later stages of the disease, it is probable that the onset has already occurred by the time these symptoms have appeared.

Seventy five per cent of cases begin insidiously. One or more joints gradually become swollen and painful, and the disease slowly and progressively spreads to involve other articulations. In these cases there may be comparatively little systemic rea[illegible] early stages. In other instances the [illegible] subacute in character. There may be repe[illegible] attacks of polyarthritis accompanied by pain, sw[illegible] and redness of the affected joints, together with constitutional disturbances such as slight fever, tachycardia and mild leukocytosis. The feet may be the first joints involved, with the characteristic changes in the hands appearing only later. The pain of flat feet is relieved by rest, whereas the foot pain of rheumatoid arthritis is severe after inactivity. Finally, in certain proportion of cases the disease begins as acute polyarthritis with high grade fever and leukocytosis, and, in the initial stages, simulates rheumatic fever.

Clinical Features of the Articular Lesions.—In typical cases the articular involvement shows a symmetric distribution. The smaller joints of the hands are particularly prone to be affected, especially the proximal interphalangeal joints of the fingers. For some reason the terminal interphalangeal joints usually escape. In this respect it usually differs from degenerative joint disease. In cases of severe disease practically every joint in the body may become involved.

A typical rheumatoid joint presents a characteristic appearance. As a rule, swelling, pain and limitation of movement are present and the nature of the swelling is rather distinctive. Owing to the thickening of the periarticular tissues and the atrophy of the muscles above and below, the joint presents a spindle-shaped appearance. The adjacent bursae and tendon sheaths are frequently involved, but there is rarely as much increase in synovial fluid within the joint as might be expected, much of the swelling being due to synovial proliferation.

While rheumatoid arthritis may become arrested or quiescent at any stage, it usually proceeds to a chronic condition. The muscles about a joint usually fall into two groups acting as antagonists, of which one is stronger than the other. When the joint becomes inflamed and painful, muscle splinting involuntarily occurs with an element of persistent contraction. The stronger of the groups exerts the greater pull, and, since this is usually the flexors, the result is a flexion contracture. The periarticular swelling gradually subsides, and contractures begin to become of greater importance. The changes are likely to be particularly apparent in the hands, wrists, knees, elbows and toes, but almost every joint in the body may be involved. In cases of advanced disease fibrous and bony ankylosis may occur, accompanied by subluxation or dislocation of the affected joints.

Muscular Weakness and Atrophy.—Muscular weakness and atrophy are prominent in rheumatoid arthritis and in some cases constitute the most striking features. Atrophy usually is particularly noticeable in the muscles of the hands, but it also occurs in all the muscles of the extremities and contributes to the fusiform appearance of the joints. In the opinion of the majority of observers the muscular atrophy is an integral part of the disease and is not solely attributable to the two known factors—disuse and muscular malnutrition—associated with persistent contraction.

Cutaneous Changes.—The skin of the extremities frequently becomes smooth, glossy and atrophic, and there may be redness of the thenar and hypothenar eminences. The hands are usually cold and clammy. Psoriasis occurs in about 3 per cent of cases.

[illegible] *Nodules.*—Characteristic subcutaneous [illegible] in 15 to 20 per cent of cases. The [illegible] often found in the region of the elbows, [illegible] over the ulna just distal to the olecranon, and [illegible] frequently over other bony prominences. They vary in size from scarcely palpable seedlike particles to lesions the size of an olive or larger. They are not painful except when their position exposes them to undue pressure when they become ulcerated and secondarily infected. The nodule is usually located in sites exposed to frequent trauma. In contrast to the nodules of rheumatic fever, which last a matter of weeks or months, the rheumatoid nodules persist for months to years.

Constitutional Extra-Articular Manifestations.—In most cases the temperature is slightly elevated in the early acute stages of the disease. In a few cases elevation of temperature up to 104 F. may continue for weeks. There is usually moderate tachycardia and a decreased peripheral circulation.

The general nutrition may suffer severely in rheumatoid arthritis. In cases of severe disease profound cachexia may develop. Various expressions of abnormal gastrointestinal function are often seen, which are believed to be secondary to the chronic debilitating nature of the disease. Joint changes indistinguishable from rheumatoid arthritis are present in 4 per cent of patients with ulcerative colitis.

Splenic enlargement occurs in 5 to 10 per cent of cases. A generalized glandular enlargement of moderate degree is commonly observed. Pericarditis has been observed in patients with rheumatoid arthritis. Myocarditis and valvular lesions have also been reported, but in these instances the presence of previous or concurrent rheumatic fever must be considered. Iritis and uveitis, often of an intractable nature, may accompany or precede rheumatoid arthritis.

LABORATORY OBSERVATIONS

In rheumatoid arthritis there is usually a hypochromic microcytic anemia of the iron deficiency type which responds little if at all to iron. The white blood cell count, the differential count and the platelets are within normal limits in most patients. The erythrocyte sedimentation rate is almost always rapid, although a few exceptions of active disease with a normal rate may be seen. Group A hemolytic streptococci are agglutinated by the serums of a considerable number of patients with peripheral rheumatoid arthritis. This is a difficult technical procedure and cannot be carried out as a routine laboratory measure. If available, however, it is a valuable aid in diagnosis, as the agglutination is rather specific with few false positive reactions. The antistreptolysin-0 titer is not elevated in rheumatoid arthritis in a greater number of instances than in the general population. The uric acid is usually within normal limits.

ROENTGENOLOGIC OBSERVATIONS

The roentgenologic picture varies so much in different stages of rheumatoid arthritis that it is convenient to describe the early and late stages separately.

Early.—Early cases may show no roentgenologic abnormalities, but gradually characteristic changes occur. In addition to the evidence of intracapsular effusion and of periarticular soft tissue swelling, the most uniform of these is a generalized decalcification. As a result of the superimposed factor of disuse, the decalcification usually appears more prominently in the region of the affected articulations, but all the bones in the body participate in the process. There may be narrowing of joint spaces and spotty marginal resorption of bone. Cortical destruction of the metatarsal heads may appear rather early.

Late.—As the disease progresses, destruction of cartilage with narrowing of the joint space occurs and small areas of cortical erosion appear. These small areas of atrophic bone destruction, often referred to as "punched-out areas," are a prominent feature of rheumatoid arthritis as well as of gout. In advanced cases the articular surfaces may become fused through fibrous or bony ankylosis. Not infrequently there may be subluxations or dislocations, with or without destruction of the ends of the bones. Coincidentally with these changes there may occur some degree of bone production, lipping and osteophytes. These develop relatively late in the disease, however, and are evidences of degenerative joint disease secondary to the rheumatoid arthritis.

DIAGNOSIS

Criteria for diagnosis of rheumatoid arthritis have now been well established, and it is possible to distinguish this disease in most instances from other forms of arthritis. From the clinical picture and the laboratory aids, the typical case offers but little difficulty in diagnosis, and only the early or atypical case will cause trouble.

Differential Diagnosis.—Degenerative Joint Disease: The differentiation between rheumatoid arthritis and degenerative joint disease is important, since numerically these two groups account for approximately two thirds of all cases of chronic arthritis and there is a great difference in their prognosis and treatment. Rheumatoid arthritis is a systemic disease and the patients are sick. Degenerative joint disease, as a manifestation of aging, affects primarily hyaline cartilage, and the patients are otherwise well. Muscular weakness and atrophy and cutaneous changes are commonly associated with rheumatoid arthritis, rarely with degenerative joint disease. Weight-bearing joints are oftener involved in degenerative joint disease, while in rheumatoid arthritis the involvement is usually symmetric and generalized. The proximal interphalangeal joints are involved in rheumatoid arthritis, the terminal most often in degenerative joint disease (Heberden's nodes), although occasionally the proximal joints are involved also. Subcutaneous nodules are not seen in degenerative joint disease. The agglutination with group A hemolytic streptococci is not positive in degenerative joint disease and the erythrocyte sedimentation rate is elevated only slightly if at all unless for some other reason. By roentgen ray, osteoporosis and ankylosis are not seen with degenerative joint disease.

Gonococcic Arthritis: Gonococcic arthritis may be clinically confused with rheumatoid arthritis, especially if more than one joint is involved and if a recent attack of gonorrheal urethritis is concealed or not recognized by the patient. The true nature of the disease should, however, soon become apparent.

Rheumatic Fever: Typical rheumatic fever does not present any problem in diagnosis, but there is a chronic type of rheumatic polyarthritis very similar to that of rheumatoid arthritis (see section on rheumatic fever).

Gout: Acute gout should not be confused with rheumatoid arthritis, but chronic gout may readily be mistaken for it. In acute gout a therapeutic response to colchicine is diagnostic. In chronic gout tophi, an elevated serum uric acid level and roentgen changes serve to differentiate the two. Punched-out areas in bone are found in both rheumatoid arthritis and chronic gout.

Lymphogranuloma Venereum: A multiple arthritis may be associated with lymphogranuloma venereum.

Tuberculous Arthritis: Tuberculous arthritis is usually monarticular, and after a few months roentgen rays will help to differentiate the two. Culture and injection of the joint exudate into guinea pigs are of value if positive, but biopsy of the synovium may be needed.

Variants of Rheumatoid Arthritis.—The following four syndromes, while called by other names, cannot be clearly separated from rheumatoid arthritis. Until their exact causation is discovered they will probably be classified by most observers under the general heading of rheumatoid arthritis, although it is recommended that their other designations be shown also:

Still's Disease: Still's disease is a term applied to what probably is juvenile rheumatoid arthritis. The joints have the same appearance as in rheumatoid arthritis and there may be typical subcutaneous nodules, but as a rule the result of the streptococcus agglutination test is negative. A number of cases have been observed over a period of years and on into adulthood. At that time the entire clinical picture cannot be distinguished from rheumatoid arthritis.

Felty's Syndrome: The name Felty's syndrome has been applied to cases of rheumatoid arthritis in which the liver and spleen are enlarged and leukopenia is present. A high percentage of these patients have positive hemolytic streptococcus agglutination reactions, and they may show typical subcutaneous nodules.

Psoriatic Arthritis: Psoriasis occurs in about 3 per cent of patients with typical rheumatoid arthritis. This probably indicates merely a tendency for these two diseases to coexist. However, there are other cases of psoriasis in which there are arthritic changes only in terminal phalanges of fingers, which show overlying psoriatic lesions of skin and nails. These cases may represent a distinct form of arthritis, but at present the question remains open.

Rheumatoid Spondylitis: This syndrome, which is known also as ankylosing spondylitis, Marie-Strümpell arthritis, von Bechterew arthritis, spondylitis ankylopoietica and spondylitis rhizomelique, is regarded by many as rheumatoid arthritis of the spine, though the relationship is not clear, and this may be a separate entity. The fact that 20 per cent of these patients have changes in peripheral joints indistinguishable from those seen in classical rheumatoid arthritis suggests that this syndrome is merely a special form of the latter disease. However, there are also dissimilar features. The sex incidence is nine or more males to one female, which is in sharp contrast to typical rheumatoid arthritis. The response to certain therapeutic measures is different also, for these patients do not respond to chrysotherapy but do receive considerable benefit from roentgen therapy. In addition the result of the hemolytic streptococcus agglutination test is almost always negative in patients with spondylitis. The roentgen picture is characterized by narrowing and poor definition of the articular margins of the sacroiliac joints, of the lateral articulations (apophysial joints) of the spine and of the costovertebral joints. Later demineralization of the vertebral bodies and calcification of the lateral spinal ligaments give the characteristic roentgen picture of the bamboo spine, but this is a fairly late finding.

PROGNOSIS

In spite of the vast amount of crippling and deformity to which rheumatoid arthritis leads, the prognosis is by no means as unfavorable as is generally supposed. It is not sufficiently appreciated that a certain proportion of patients recover more or less completely. More frequently, the process becomes arrested or quiescent at some stage in its course and the patient is able to carry on activities with only a small amount of difficulty. In a smaller proportion of cases the disease pursues a cruel and inexorable course, leaving the patient severely crippled.

It is impossible to forecast the turn of events in an individual patient. In the most favorable case a severe relapse may occur at any time, while, on the other hand, the most malignant example of the disease may suddenly become arrested.

Few accurate statistics on the natural course of the disease are available, but in a recent series over a five to ten year period, 15 per cent were found to be in remission, 38 per cent were improved, 13 per cent were unchanged and 34 per cent were worse. Of the patients who had had the disease for more than one year, only 5 per cent were in remission and 50 per cent were stationary or worse. In this same report severe extensive disease was the most important single sign of a poor prognosis. Of no importance in the ultimate prognosis were such things as prodromal symptoms, acuteness of onset and the presence of anemia.

TREATMENT OF RHEUMATOID ARTHRITIS

Although at present there is no specific cure, it is often possible to control the disease or improve its clinical course. Rheumatoid arthritis is a systemic disease; the patient must be treated as a whole rather than with local therapy to the joints alone. Certain factors must be borne in mind in evaluating results of therapy: (*a*) the disease is subject to spontaneous relapses and remissions, and (*b*) certain patients recover fairly quickly, and the last therapy used is apt to be given the credit. Critical appraisal of any therapeutic agent in this disease requires several years of observation.

Realizing the difficulty of evaluating therapeutic claims, one should not be dogmatic in assessing the value of any single measure. In general, however, the therapeutic agents used in rheumatoid arthritis may be divided into three groups: (1) measures of proved value, (2) measures on which there is fairly uniform agreement but not complete unanimity and (3) measures which are of doubtful value or useless.

Measures of Proved Value.—These, for the most part, are directed toward improving the patient's general health.

(*a*) Rest: Rest is probably the most important single measure in the treatment of this disease—rest for the body as a whole and rest for the inflamed joints in particular. However, in prescribing rest, intelligence and insight are necessary. The amount of rest varies from confinement in a hospital for six weeks to one year for the patient with severe disease to breaking the day with a two hour rest period when the disease is mild. Rest must be regulated carefully. It is never necessary to prescribe absolute bed rest. Even in the case of most severe disease, mild muscle setting exercises should be prescribed and should be increased as the patient improves. Each case must be considered on its own merits. For local rest, suitable splints of the "gutter" type are of great assistance.

(*b*) Nutrition and General Hygiene: The majority of patients are underweight, undernourished and chronically ill. Every effort should therefore be made to maintain their nutrition in the best possible state. A well balanced diet of nourishing food is essential. All measures for improving the patient's general health should be encouraged. These include correct bowel function, dental care and removal of obvious foci of infection. No one now believes that the removal of an infected focus will alter the course of rheumatoid arthritis, and extraction of teeth, tonsils, gallbladders and pelvic organs is to be condemned unless they are so diseased that they should be removed for their own sakes. Indeed, wholesale removal of teeth usually is not only useless but actually harmful to the patient through interference with nutrition.

(*c*) Drugs: Salicylates constitute the one group of drugs which are of symptomatic value for the relief of pain. Occasionally it is necessary to resort to other drugs, such as barbiturates, for rest and sleep, and small amounts of codeine for brief periods of time. Morphine and meperidine hydrochloride (demerol®) should be avoided, as they should in any chronic, painful disease.

(*d*) Prevention and Correction of Deformities: In no disorder of the joints is the prevention of deformities of greater moment. The deformities are too often due to neglect and, to a great extent, can be prevented by skilful use of splints. For the prevention and correction of hand deformities light aluminum splints are usually used, but for other joints deep "gutter" splints of plaster are preferable. These are worn only part of each day and at night in most cases, although for the correction of existing contractures continuous use is sometimes advisable for short periods. In rheumatoid spondylitis, a suitable brace during the day and a plaster shell to sleep in may prevent the spine from becoming rigid in a faulty position. In general, when stiffness and pain are severe, weight bearing should be restricted. When weight bearing is allowed, shoes which give some support should be prescribed and worn consistently, and loose slippers are to be avoided. When flexion contractures have occurred, active and passive exercises in conjunction with repeated plaster casts made in increasing extension may help to correct the contracture. If ankylosis is to be the end result, it is of the utmost importance that the affected joint become ankylosed in the optimal position for use. The knee should be extended to 180 degrees; the hip in straight position; the wrist in middorsal flexion half way between pronation and supination, and the elbow flexed at about 90 degrees. When deformities due to ankylosis have occurred, surgical measures may be of great value. Such surgical procedures should be done when the activity of the disease has subsided.

(*e*) Physical and Occupational Therapy: Physical therapy and spa therapy are useful for many types of arthritis. Baths and exercises in warm pools are sometimes helpful. Heat in the form of poultices, melted paraffin baths, baking lamp or diathermy is often comforting but is not curative. In fact, in the case of acute disease local heat sometimes is not well tolerated. The most useful forms are simple measures such as the application of heat and muscle exercises which can be performed at home daily by the patient after a minimum of instruction. Violent massage and strenuous passive exercises are poorly tolerated, and all such therapy should be confined within limits of pain and fatigue. Occupational therapy can be of great assistance in awakening the patient's interest in exercising important groups of muscles.

(*f*) Psychotherapy: The importance of psychic factors in this disease is great but has not been clearly defined. It is clear, however, that the attitude of the physician to the patient is most important. Encouragement to the patient and an optimistic interest in his illness will often help him to carry out his routine, whereas the reverse attitude will permit the patient simply to sit and allow deformities to develop.

(*g*) Rehabilitation: The training of crippled patients to make the greatest use of their limited capacities is important in the severely disabled.

Measures on Which There Is Fairly Uniform Agreement but Not Complete Unanimity.—(*a*) Chrysotherapy in Rheumatoid Arthritis of Peripheral Joints: Gold compounds have been used widely in Europe for the last fifteen years and in this country for ten years. There is now fairly uniform agreement—but with some very competent dissenters—that gold is the one agent which has been shown to change the course of rheumatoid arthritis in a significant number of patients. The mechanism of its action is not understood. However, even the most enthusiastic proponents of gold recognize its limitations, which are these: 1. Gold is a toxic drug. Severe toxic reactions occur in from 10 to 20 per cent of patients. Fatalities occurred when gold was first used but, with the precautions now observed, deaths from gold are extremely rare at present. 2. Gold does not benefit a considerable number of patients with rheumatoid arthritis. 3. The beneficial effects of gold are temporary and relapses may occur after its use has been stopped.

Toxic reactions ascribed to gold in the past included practically every system in the body, but it is now generally agreed that these reactions fall into four categories: (1) cutaneous: varying from mild pruritus to fatal exfoliative dermatitis; (2) hemopoietic: with depression of one or more elements, agranulocytosis, thrombopenia or even aplastic anemia; (3) renal: varying from mild albuminuria to full blown heavy metal type of nephrosis, and (4) mucous membrane: stomatitis, gastritis, colitis.

There continues to be considerable discussion as to whether or not gold is a hepatic poison. Most cases of acute yellow atrophy or of the milder infectious hepatitis following use of gold compounds may also be due to a homologous serum jaundice either from contaminated needles or from a transfusion given concurrently with gold. However, some authorities maintain that gold is a hepatic poison, and evidence of hepatic damage should be searched for when a patient is receiving gold.

Toxic reactions may be prevented to a limited extent by care on the part of the physician. With the use of smaller doses (never above 50 mg. of the compound at a time) the incidence of renal and mucous membrane complications has decreased markedly. Urinalyses every week or two during the course of treatment with gold may help to avoid a serious reaction. When albuminuria appears, use of gold should be stopped. Fewer blood dyscrasias have been seen following the use of the smaller doses as well, but these still occur. White blood cell counts with differential counts and estimation of the number of platelets on the smear should be done every week or two in order to detect the earliest evidence of a toxic reaction. These reactions, however, may appear suddenly, and it is impossible to predict them. Manifestations of skin toxicity are usually preceded by pruritus, but they, too, may appear without warning. Any rash appearing during the course of gold therapy should be considered a toxic reaction to gold. At the first sign of leukopenia, thrombopenia with or without purpura, or pruritus, gold should be stopped. However, simply stopping the administration of gold is often of little value, since the gold injected remains in the tissues for long periods and even ten months after the last injection gold may be detected in the urine. Recent preliminary reports on the use of 2,3-dimercaptopropanol (BAL) in the treatment of gold toxicity have been encouraging and if confirmed, more effective therapy of the complications of chrysotherapy may be available. If a severe toxic reaction develops, gold should usually not be administered again.

Because almost all patients who have been benefited by gold relapse after the gold is stopped, the original method of treatment has been supplemented in almost all clinics by that of maintenance dosage whereby gold is continued indefinitely at intervals of two to four weeks. The efficacy of this method in preventing relapses has not yet been established. For detailed schedules of treatment, the reader is referred to articles on this subject, since no physicain should use this form of therapy who has not made a more thorough study of it than could be presented in this Primer.

(*b*) Transfusions: Hypochromic (secondary) anemia, refractory to the administration of iron, is common in this disease, and two or three transfusions of 500 cc. of whole blood at fortnightly intervals may be of distinct value. Some observers believe that in rheumatoid arthritis transfusions exert a beneficial effect in addition to the antianemic effect.

(*c*) Roentgen Therapy in Rheumatoid (Marie-Strümpell) Spondylitis: There is general agreement that chrysotherapy does not benefit rheumatoid spondylitis. Roentgen therapy, on the other hand, is of considerable value in rheumatoid spondylitis but not in rheumatoid arthritis of peripheral joints. Roentgen therapy, when combined with general care, proper exercises and the preservation of an erect posture, by braces if necessary, will cause a symptomatic remission in over 80 per cent of patients with rheumatoid spondylitis. This is characterized by decrease in pain and stiffness and increase in mobility of the spine. It is of interest that although the patients have relatively few subjective symptoms of pain and stiffness, roentgenologic changes and increasing rigidity of the spine continue to progress.

(*d*) Climate: Well controlled studies have not been made on the incidence of rheumatoid arthritis in various parts of the United States or on the effects of climate on the disease once established. One can say, however, that, other factors being equal, it seems wise for patients with rheumatoid arthritis to avoid the northern winters when economic and other factors do not make such a move a greater hardship.

Measures Which are of Doubtful Value or Useless.—The following belong in this category and cannot be recommended: (*a*) vaccine therapy, (*b*) foreign protein therapy, (*c*) vitamins in massive doses, (*d*) drugs as specifics, (*e*) endocrine preparations, (*f*) dietary fads, (*g*) fever therapy, (*h*) sulfur, (*i*) bee venom therapy, (*j*) sulfonamide derivatives, (*k*) penicillin and (*l*) antireticulocytotoxic serum.

The value of vaccine therapy remains unproved. The value of foreign protein injections in the form of milk, typhoid vaccine and the like has not been definitely proved. Fever therapy is followed by only temporary improvement. These are rigorous procedures, and few patients with rheumatoid arthritis can tolerate them. At the present time therapy with large doses of vitamin D should be regarded as of doubtful value with definite potentialities for harm. There are no specific drugs. Optimistic reports with endocrine preparations, dietary fads and colloidal sulfur have not been substantiated. Injections of bee venom are of no value. Sulfonamide compounds and penicillin have been useless. Bogomolets' antireticulocytotoxic serum has proved valueless in rheumatoid arthritis.

DEGENERATIVE JOINT DISEASE

This common articular disorder has been variously named osteoarthritis, hypertrophic arthritis, senescent arthritis and, by certain European writers, arthritis deformans.

PATHOGENESIS AND CAUSATION

Pathogenesis.—The earliest pathologic signs of this form of rheumatism are invariably small pits and irregularities of the articular surfaces. These are defects in the hyaline cement substance of cartilage which permit the structural fibrils of the normally homogeneous matrix to become apparent (fibrillation). Subsequently, the ulcerations extend toward the borders of the cartilage and more deeply into it. The cartilaginous surface may show wide erosions and splits, which penetrate to the epiphysial bone. Cell clusters, and occasionally macroscopic fragments of cartilage, are separated and dislodged into the articular space. Several reactive phenomena can be observed in other components of the joint secondary to this process. Even with early lesions there is active growth of primitive cells at the periphery where cartilage and synovial intima blend into a zone of transitional tissue. Metaplasia to cartilage and bone frequently occurs at this site. Marginal proliferations may also arise at the juncture of periosteum and fibrous synovial capsule, and from subchondral bone. In any case, this development of so-called bony spurs, lipping or osteophytes represents a fairly advanced phase of degenerative joint disease. As the breakdown of cartilaginous matrix begins, the calcified lamella separating cartilage from subchondral bone tends to become thicker and denser, and may even be reduplicated. In examples of severe destruction of cartilage the epiphysial marrow sometimes shows signs of irritation in increased vascularity and growth of endosteal cells and marrow fibrocytes. This granulation tissue may break through the calcified lamella to invade foci of degeneration in the cartilage. Detritus cysts are not infrequently encountered and may give rise to translucent defects in the subchondral area on roentgen examination. The ultimate stage of the disease is characterized by complete loss of hyaline cartilage from the articular surfaces and its replacement with sclerosed, eburnated bone. True ankyloses do not occur, although calcification and osseous bridges are found in some joints the coverings of which are made up in part or altogether of fibrocartilage (for example, the sacroiliac and acromioclavicular joints), and in interspinous ligaments leading to variable degrees of rigidity of the vertebral column. Alterations in the synovial membrane are not striking and consist mainly of increased density of subintimal tissue.

Causation.—The causation of degenerative joint disease is unknown. It is noteworthy that evidence of inflammation in synovial tissue is rare even in the most severe and final stages of the disease, and, when present, indicates a mild and chronic process. Focal infection is not a causative factor. Vascular disturbances, arteriosclerosis and urate deposits have not been encountered oftener than might be expected in an unselected group of persons of the same ages. The positive results, on the other hand, gained from anatomic review of sizable postmortem material, indicate clearly that the primary change is one of degeneration and that this is correlated with both advancing age and functional stresses such as weight bearing. It may be considered proved that the incidence, degree and distribution of degenerative articular lesions vary directly with these factors. Deterioration of cartilage in the weight-bearing areas, for instance of the knee joint, may be demonstrated in some persons toward the end of the second decade of life. It occurs with great frequency and in many joints between the ages of 20 and 40, and is present in 80 to 90 per cent of persons past 60 years of age. Increased wear and tear through excessive and abnormal use of a joint is known to accelerate and enhance the tendency to degenerative changes. As examples of such contributory factors, one may cite occupational stresses, obesity, malposture and habit spasm. Wear and tear is also increased by functional derangements, such as genu valgum, and other mechanical defects within a joint. Damage as the result of previous trauma or an attack of some other form of arthritis may cause degenerative changes to develop sooner. Although pathologic reviews have proved the distribution of histologic changes to be nearly equal in the two sexes, clinical manifestations are seen more often in females than in males. Statistical studies have established a higher incidence of Heberden's nodes in women and the presence in some families of a sex-linked hereditary predisposition for this classical feature of degenerative joint disease. These observations suggest that factors other than the aging process and attrition influence the development and course of degenerative joint disease.

CLINICAL FEATURES

The earliest symptoms usually are insidious mild stiffness and aching pain in or about the affected joint. Fever, leukocytosis, malaise, loss of weight, cachexia or other constitutional manifestations are lacking. Physical signs are inconspicuous at first, but even though there may be no visible changes, passive or active motion, especially in the extremes of range, may reproduce pain. Palpation of the joint during motion may elicit crepitus. Tenderness may be noted at the articular margins. As the disease progresses there is gradual firm or hard, irregular enlargement of the affected joints, although there also may occasionally be slight thickening of the soft tissues. Tenderness will then commonly be found over the periosteal-synovial junction and there may be spasm and tenderness of the associated muscles. Rarely, and in cases of severe disease, one may feel a moderate degree of local edema and increased warmth especially after excessive use of the joint. In the terminal interphalangeal articulations of the fingers the onset may occasionally occur in the form of a fairly sudden, tender, fluctuant swelling, often mistaken for an infection. Generally, articulations which are subject to greater strain, such as the knee and hip joints and the lower spinal articulations, become involved first and to a greater degree. For unknown reasons, the elbows, wrists and ankles are much less frequently affected. Degenerative joint disease is seen much oftener in the terminal than in the proximal interphalangeal joints. While, therefore, one may anticipate certain sites of predilection, the localization of the disease affords no absolute diagnostic criterion, since cartilage in any joint and throughout the body is subject to the same deteriorative process.

Whereas pathologic evidence of degenerative joint disease can be found in young adults and, to be sure, at any age without noteworthy symptoms, clinical manifestations usually do not occur in significant numbers of patients until the latter part of the fourth and the beginning of the fifth decade of life. Again, in contrast to the steadily progressive anatomic changes which have been demonstrated in 80 to 90 per cent of persons above 60, the frequency of symptomatic illness from this process is not of the same order in this age group.

LABORATORY AND ROENTGENOLOGIC OBSERVATIONS

These furnish no definite clue, in that degenerative joint disease does not cause abnormal blood counts, erythrocyte sedimentation rates or basal metabolic rates or characteristic immunilogic serum reactions or deviations in blood chemistry values. Contrary to widespread concept, normal roentgenograms do not exclude the diagnosis, since the familiar roentgen stigmas, such as subchondral condensation of bone, narrowing of the articular space and irregular new growths (osteophytes, spurs, lipping) at the articular margins, are secondary events and occur after the degeneration of cartilage has begun. Discrete subchondral rarifactions may be seen and erroneously interpreted as evidence of gouty arthritis.

DIAGNOSIS

During the early stage of the arthropathy positive identification is rarely possible. Intermittently progressive articular aching relieved on rest, with minimal physical signs of joint disease in a middle-aged person without evidence of general illness, should lead one to consider this diagnosis. The appearance of advanced degenerative joint disease, however, is distinctive, especially when it affects the smaller finger joints with firm

Clinical Notes, Suggestions and New Instruments

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Brooklyn

In recent years the inhalation of the beryllium dusts has become a well recognized industrial hazard.[1] Van Ordstrand[2] and others have described acute pulmonary lesions and Hardy and Tabershaw[3] have described chronic pulmonary lesions associated with the industrial uses of this metal.

Four types of cutaneous lesions have been reported as resulting from exposure to beryllium salts:

1. Gelman, Van Ordstrand and others described a contact dermatitis after exposure to dust and fumes of beryllium sulfate, fluoride and oxyfluoride.

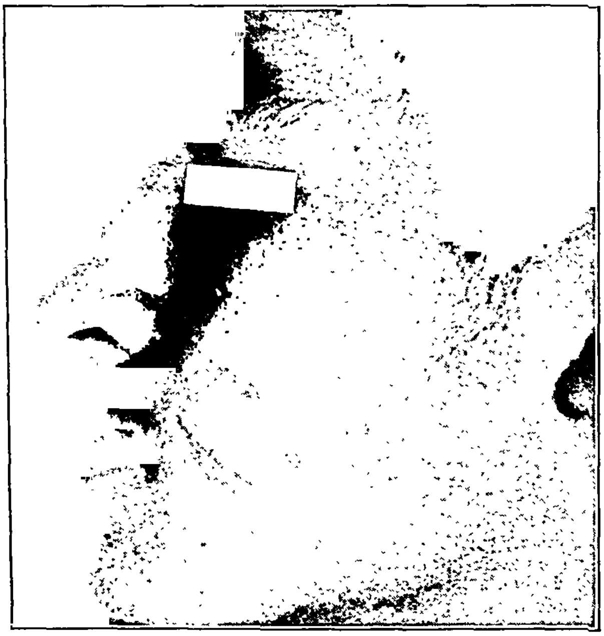

Fig. 1.—Preoperative appearance of scars.

2. Gelman and Van Ordstrand also reported ulcers which result from the implantation of crystals of beryllium sulfate in a laceration. These lesions do not heal unless the crystal of beryllium salt is removed.

3. Hardy and Tabershaw,[3] and Pyre and Oatway[4] have described cutaneous lesions which developed in patients with pulmonary granulomatosis. These lesions appeared from six months to five and one-half years after cessation of work with beryllium phosphors and showed a histologic picture "characteristic of sarcoid." The lesions are believed to be part of a generalized disease.

4. Grier, Nash and Freiman[5] reported 3 cases of subcutaneous granuloma occurring in persons who had cut themselves on fluorescent lamps. The histologic description of these granulomas was very like that of sarcoidosis of the skin. Zinc manganese beryllium silicate was the phosphor with which the inside of these lamps was covered.

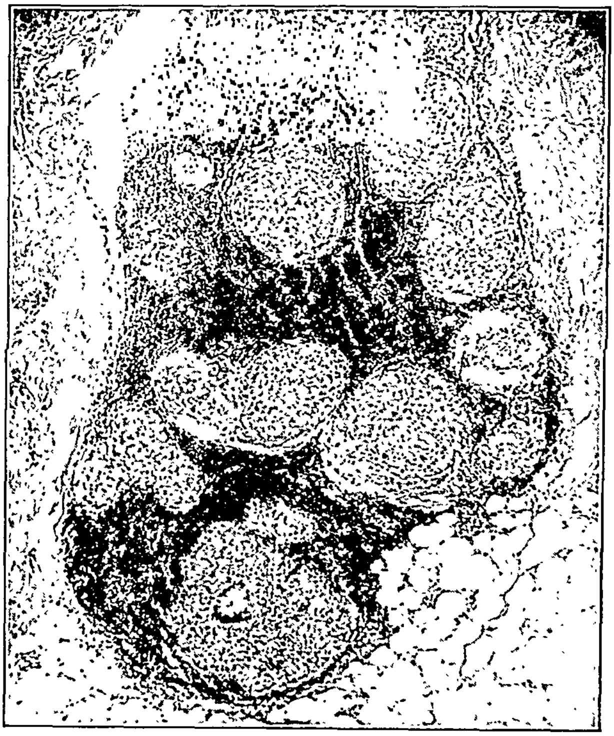

Fig. 2.—Photomicrograph showing sarcoid-like lesions.

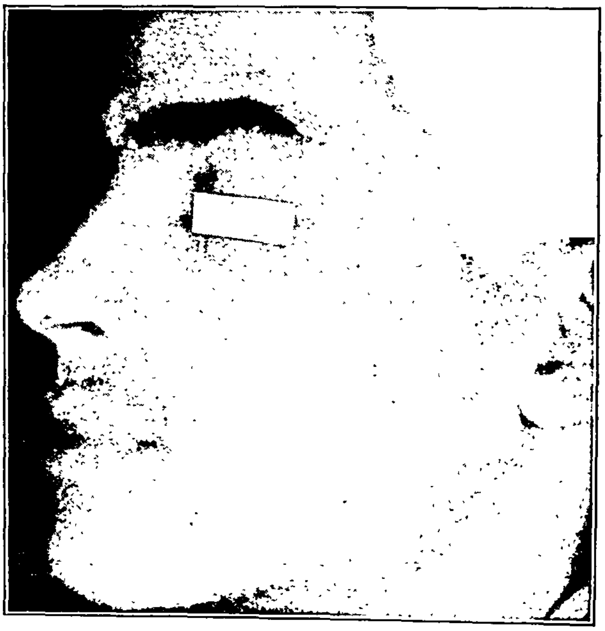

Fig. 3.—Appearance of the face nine months postoperatively.

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From the Plastic Surgery Service of Kings County Hospital.

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[2] Van Ordstrand, H. S.; Hughes, R.; DeNardi, J. M., and Carmody, M. G.: Beryllium Poisoning, J. A. M. A. **129**: 1084 (Dec. 15) 1945.

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[4] Pyre, J., and Oatway, W. H., Jr.: Beryllium Granulomatosis, Arizona Med. **4**: 21, 1947.

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or hard, knobby enlargement leading eventually to gnarled deformities and a somewhat limited range of motion. Mention must be made of the frequency with which degenerative lesions in the articulations of the spine produce symptoms in remote areas, often without giving rise to local complaints. The phenomenon of referred sensations from the thoracic and lumbosacral segments to the trunk and lower extremities is generally recognized. It should also be appreciated that neuralgias localized to the occipital, frontal, retrobulbar or other areas of the head may have their origin in foci of cervical spondylosis. Careful palpation of the spinous processes and lateral spinal articulations, search for muscle spasm and the elicitation of pain in any of the three principal modes of motion of the spine may furnish the clue to this. Immediate though temporary amelioration of referred complaints after manual traction is sufficiently common to render this simple maneuver a useful diagnostic aid when roentgen rays fail to reveal any significant disease.

Degenerative joint disease can as a rule be readily distinguished from inflammatory and infectious arthritides by the lack of constitutional manifestations and by the absence of synovitis. There is usually no significant muscle atrophy, except in cases of advanced malum coxae senilis. In distinction to the various types of arthritis, the course of this disorder is slowly and steadily progressive over years and decades and not punctuated by fulminating attacks. However, more or less acute episodes may occur when the degenerative process has been accelerated and as the result of unusual or even trivial strains on devitalized cartilage.

As has been said, degenerative joint disease and rheumatoid arthritis are dissimilar and should not be confused. Sometimes, when degenerative joint disease involves not only the terminal interphalangeal joints of the fingers (Heberden's nodes) but also the proximal ones, the deformity of the latter may simulate somewhat the fusiform swelling of these joints in rheumatoid arthritis. The hard, knobby character of the enlargement in degenerative joint disease, however, makes the nature of the process clear.

TREATMENT

No specific therapy is known. Therefore this form of rheumatism must be managed by the control of symptoms and the relief of strains on the affected articulations. Except for degenerative hip disease (malum coxae senilis), which often ends in severe disability, and except for a small number of patients with an apparently marked constitutional predisposition, clinical results with this approach will be gratifying.

Reassurance.—It is essential to give the patient, who frequently harbors grave fears of becoming a hopeless cripple, the proper perspective of his fundamentally benign disorder, and it is neither wise nor correct to state or imply that nothing can be done for him and that he need not return. In some patients, coexistent neurotic conflicts and the attendant muscle tension appear to aggravate disability from degenerative joint disease. In such cases the resolution of emotional problems and the attainment of relaxation may produce striking benefit.

Rest.—The most rational therapeutic measures are those providing rest for the affected part. The means to insure this should be applied to the individual joint with a view to its peculiar stresses in weight bearing and motion. In the case of a peripheral articulation of the upper extremity, simple splinting is usually sufficient. In joints of the lower part of the spine, legs and feet, additional measures to relieve strain and weight bearing may be necessary. Support to various parts may be provided by strapping, belts, braces or by the use of canes or crutches. For more severe degenerative disease of the hips and lower part of the spine rest in recumbency with or without traction may be required.

Physical Therapy.—Physiatric measures are valuable in the correction of malpostures which act as contributory factors and in the treatment of degenerative joint disease. During especially painful phases such measures should be confined to applications of heat in a simple form, preferably hot soaks, hot towel packs or infra-red light, accompanied by stroking massage of the periarticular tissues and muscles. After a few days, when the lesion has become quiescent, passive motion should be added before a gradual return to active exercises and normal function. Roentgen therapy has been advocated for the relief of pain, but its benefit is unproved and its use for this purpose in degenerative joint disease unjustified when satisfactory relief can be obtained by safer means.

Diet.—The food intake should follow a normal pattern unless caloric restrictions are advisable. Since obesity is a common aggravating circumstance, weight reduction is frequently indicated to relieve abnormal strains on the joints of the lower part of the spine and the legs.

Drugs.—Relief from pain and muscle spasm in this disease is usually afforded by the salicylates, for instance acetylsalicylic acid in doses of 0.3 to 0.6 Gm. (grains 5 to 10) four to six times daily. The simultaneous administration of a mild sedative such as phenobarbital 0.008 Gm. (grains ⅛) may be helpful in patients with significant nervous tension. If the patient suffers from a deficiency of gonadal hormone, substitution therapy is reasonable, although the specific value of estrogens and androgens in human degenerative joint disease has not been proved. Other glandular elements or vitamins should also be given only on a demonstration of their specific lack. No rationale exists for the use of colchicine, cinchophen, iodides, vaccines, sulfur, gold salts, antibiotics or vitamins in massive dosage.

Surgery.—While the procedures outlined may ordinarily be relied on to control disability from degenerative joint disease and the successful handling of this disorder lies within the therapeutic scope of the general practitioner, the services of an orthopedic specialist will at times be required. Considerable benefits may, in some instances, be obtained from surgical procedures correcting a primary mechanical dysfunction or stabilizing severely damaged articulations. Arthroplasties on the hip joint, especially cup arthroplasties, have in many instances of advanced malum coxae senilis led to an increase in range and diminution of pain. It is pertinent to recall here that following surgical procedures, except those planned for stabilization, a careful program of physical therapy with special emphasis on passive motion should be instituted immediately.

(To Be Continued)

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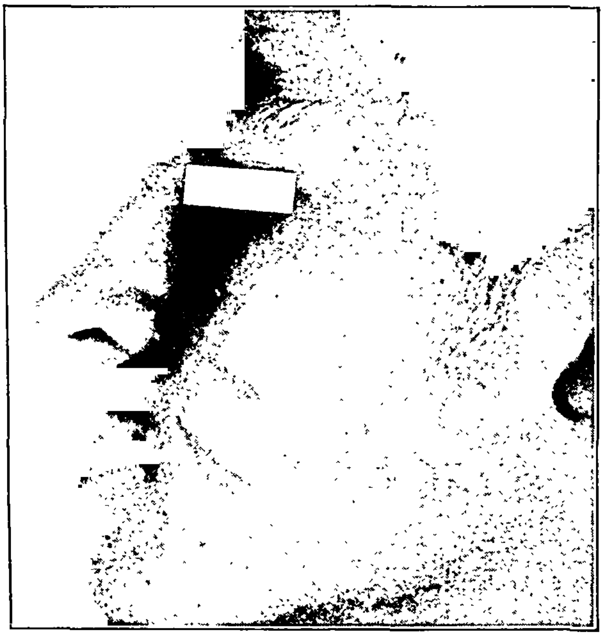

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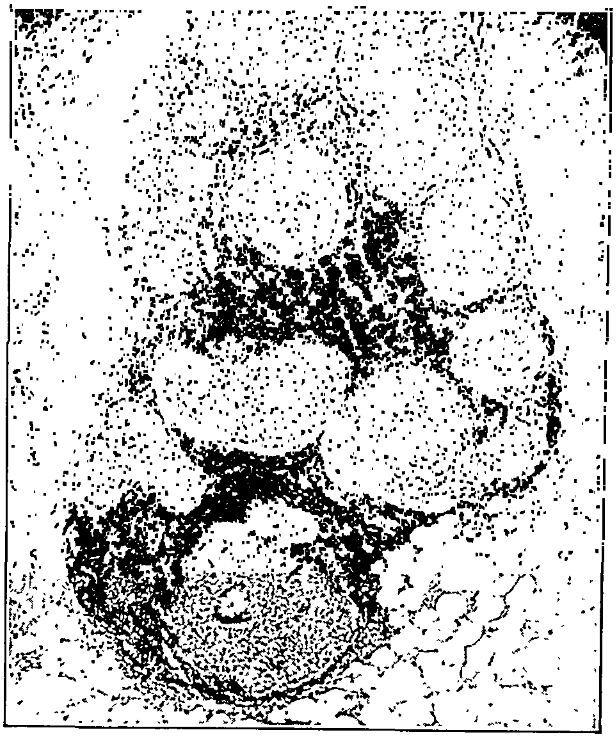

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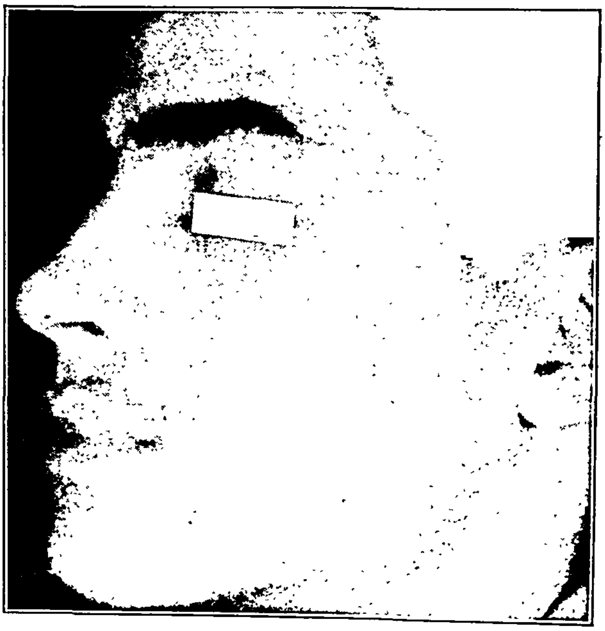

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tubes with respect to the general public. Fluorescent lighting is widely used today in homes and in places of employment, but few persons are aware that some caution should be used in the handling and disposal of fluorescent lamp tubes. The following case report brings out the danger of careless disposition of burned out fluorescent bulbs. The potentiality of injuries with fluorescent bulbs is called to the attention of practicing physicians.

REPORT OF A CASE

R. S., a 16 year old Puerto Rican boy, was admitted to the plastic surgery service of Kings County Hospital on Dec. 4, 1947. Two years before admission, while playing with burned out fluorescent bulbs, he broke one and was cut on his left cheek, in two places. The wounds were fine lacerations, approximately 1 inch (2.5 cm.) in length, horizontal and parallel in position, just below the level of the zygoma and ½ inch (1 cm.) apart. Although both wounds were superficial, the upper wound was sutured because of excessive bleeding. After several days, the sutures were removed and the wounds appeared to be healed. As time went on, a painful nodule appeared in the lower scar, and there was an intermittent discharge from this scar of "pieces of white meat." Because of the pain and discharge, one year after injury, the patient received radiation therapy to the scars. The amount of radiation is not known, but treatments were given once a month for four months, without causing any improvement.

A review of past history revealed that on April 6, 1942, the patient was brought to the outpatient department of Kings County Hospital for routine examination. At that time he was a normal 10 year old child. A roentgenogram of the chest revealed minimal prominence of both hilar regions and numerous small calcifications scattered throughout both hilar regions, especially the right, in the region of the right lower lung field. This was interpreted as being compatible with a healed tubercular process. The patient was not seen again at this hospital until admission for his present complaint. The remainder of the patient's history was noncontributory.

Physical examination on admission revealed no abnormality other than the two scars on the left cheek. The scars were about 1 inch long, flat, firm, crescentic and red, but nontender. There was no regional lymphadenopathy; the temperature was 98.6 F., pulse rate 72 and respiratory rate 18.

Laboratory Data.—The red blood cell count was 4,500,000 per cubic millimeter, hemoglobin 13.9 gm. per hundred cubic centimeters and white blood cell count 7,200 per cubic millimeter, with a normal differential count. Studies of the chemical content of the blood revealed: serum potassium 22 mg. and serum calcium 10.6 mg. per hundred cubic centimeters; serum alkaline phosphatase 7.5 units, and serum globulin 2.2 Gm., serum albumin 4.5 Gm., total protein 6.7 Gm. and total cholesterol 182 mg. per hundred cubic centimeters. The reaction to the tuberculin skin test was negative in a dilution of 1:10,000.

Roentgenologic Studies.—A roentgenogram of the face revealed no evidence of any opaque foreign bodies in the soft tissues of the face.

A roentgenogram of the chest revealed no evidence of mediastinal or hilar adenopathy. Both lung fields appeared clear, and there was no evidence of Boeck's sarcoid or tuberculosis.

On Dec. 5, 1947, the lesions were excised with local anesthesia and the wounds were closed with buried and cutaneous sutures. The wound healed by primary intention.

Histologic sections of the excised tissue revealed sections of skin showing epithelial atrophy and focal ulceration with subepithelial, intradermic, discrete and confluent granulomatous lesions, each consisting of compact collections of mononuclear cells with scattered lymphocytes, fibrocytes and a few giant cells of the Langhans and foreign body type. An occasional lesion showed a mild degree of central degeneration, but frank necrosis was not observed. A few of the lesions revealed internal hyalinization without concentric arrangement. Doubly contoured or concentrically laminated inclusion bodies were found within a few of the giant cells and also free within the lesions proper.

A diagnosis of subepidermal granuloma, resulting from local implantation of a beryllium phosphor, was made.

The patient was last seen in the outpatient department of the hospital on Sept. 7, 1948. At that time, there was no evidence of recurrence of the facial lesions and the operative scars were thin and inconspicuous. A roentgenogram of the chest revealed no evidence of pulmonary or pleural changes.

COMMENT

Lacerations caused by broken fluorescent bulbs may result in cutaneous lesions which are histologically similar to Boeck's sarcoid. Physicians who have occasion to treat such injuries should be aware of this possibility and should follow these patients for several years. The development of nodules and ulceration at the site of lacerations caused by broken fluorescent bulbs should arouse suspicion of granuloma due to beryllium. These suspicious lesions must be widely excised and subjected to careful histologic examination. One of the lesions reported by Grier, Nash and Freiman [5] was inadequately excised, and recurrence of the granuloma occurred. It is because of this danger of recurrence that wide excision is advised.

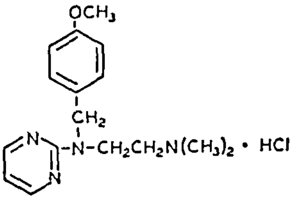
Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

Austin Smith, M.D., *Secretary.*

THONZYLAMINE HYDROCHLORIDE.—"Neohetramine Hydrochloride"-Wyeth.—N,N-Dimethyl-N'-(p-methoxybenzyl)-N'-(2-pyrimidyl) ethylenediamine hydrochloride. —$C_{16}H_{22}N_4O.HCl$.—M. W. 322.83.—The structual formula for thonzylamine hydrochloride may be represented as follows:



Actions and Uses.—The therapeutic action of thonzylamine hydrochloride is qualitatively the same as with other members of the antihistaminic series, but the frequency and degree of effectiveness is of a lower order. Its outstanding advantage is that it is tolerated better than the other compounds, sedation being less frequent and less severe.

Dosage.—The average adult dose is 100 mg.

Tests and Standards.—

Thonzylamine hydrochloride occurs as a white, crystalline powder, having a faint odor. It melts between 173 and 176 C. It is very soluble in water, freely soluble in alcohol and chloroform, and practically insoluble in ether. The free base is obtained as an oil on the addition of 5 per cent sodium hydroxide to an aqueous solution of thonzylamine hydrochloride. A 2 per cent aqueous solution of thonzylamine hydrochloride has a *p*H between 5.1 and 5.7.

Dissolve about 25 mg. of thonzylamine hydrochloride in 5 cc. of water. Add a few drops of nitric acid, followed by 1 cc. of silver nitrate T. S.: a white precipitate of silver chloride is obtained. Add about 50 mg. of thonzylamine hydrochloride to 2 cc. of sulfuric acid: a pink solution is obtained which turns red on standing.

Add 3 drops of a saturated aqueous solution of Reinecke's salt to 2 cc. of a 2 per cent aqueous solution of thonzylamine hydrochloride: a pink precipitate is formed.

Dissolve about 0.1 Gm. of thonzylamine hydrochloride in 25 cc. of water and add the solution to 25 cc. of a saturated aqueous solution of picric acid containing 0.2 cc. of sulfuric acid. The yellow thonzylamine dipicrate obtained melts between 141 and 145 C.

Dissolve 1 Gm. of thonzylamine hydrochloride in 25 cc. of water. Add 1 cc. of diluted hydrochloric acid and then add 10 cc. of hydrogen sulfide T.S. The color produced is less than that obtained when 3 cc. of standard lead solution *(U.S.P. XIII)* is treated in a similar manner *(heavy metals)*.

Dry about 1 Gm. of thonzylamine hydrochloride, accurately weighed, at 110 C. for 4 hours: the loss in weight does not exceed 0.5 per cent.

Char about 0.5 Gm. of thonzylamine hydrochloride, accurately weighed, over a low flame. Cool, then add 1 cc. of sulfuric acid and continue ignition until no carbon remains: the residue should not exceed 0.1 per cent.

Transfer 0.1 Gm. of thonzylamine hydrochloride, accurately weighed, to a 100 cc. volumetric flask and dilute to the mark with alcohol. Mix thoroughly and transfer 10 cc. of the solution to another 100 cc. volumetric flask. Dilute to 100 cc. with alcohol; mix well and transfer 10 cc. of the solution to a third 100 cc. volumetric flask and dilute to 100 cc. The final solution (0.001 per cent) exhibits an ultraviolet absorption maximum at 2440 A. $(E^{1\%}_{1\ cm.} = 750 \pm 7)$ with minor peaks at approximately 2780, 2835 and 3070 A., and exhibits minimums at approximately 2680, 2800 and 2920 A.

Transfer 0.1 Gm. of dry thonzylamine hydrochloride to a semi-micro Kjeldahl flask and digest with 5 cc. of sulfuric acid, 2 Gm. of potassium sulfate, 0.2 Gm. of copper sulfate and 1 cc. of 30 per cent hydrogen peroxide. Dilute the clear solution to 15 cc. with water, make alkaline with 40 per cent sodium hydroxide, and distil the ammonia into 75 cc. of 0.02 *N* sulfuric acid. Titrate the excess acid with 0.02 *N* sodium hydroxide, using methyl red T.S. as an indicator. The nitrogen content is not less than 17.0 nor more than 17.6 per cent.

Transfer about 0.5 Gm. of dry thonzylamine hydrochloride, accurately weighed, to a separatory funnel. Add 25 cc. of water and 5 cc. of 20 per cent sodium hydroxide, and extract the mixture with four 25 cc. portions of ether. Collect the ether extracts in a separatory funnel and wash them successively with two 10 cc. and one 5 cc. portions of water. Combine the water extracts, saturate them with sodium chloride, extract them with 10 cc. of ether, and add this ether to the combined ether extracts. Treat the combined ether extracts with two 25 cc. portions of 0.05 *N* hydrochloric acid, and then successively with 10 cc. and 5 cc. of water. Combine the acid and water extracts, heat gently until the ether is removed, cool, and titrate the excess acid with 0.05 *N* sodium hydroxide, using methyl red T.S. as an indicator. Each cc. of 0.05 *N* acid used is equivalent to 0.01614 Gm. of thonzylamine hydrochloride: the amount of thonzylamine hydrochloride is not less than 98.5 nor more than 101.5 per cent.

Tablets: Thonzylamine hydrochloride in tablets may be identified as the dipicrate by dissolving the tablets in water, making the solution basic with sodium hydroxide T.S., extracting the solution with ether, reextracting the ether solution with diluted hydrochloric acid and then treating the acid solution with an excess of a saturated aqueous solution of picric acid. The dipicrate obtained melts between 141 and 145 C.

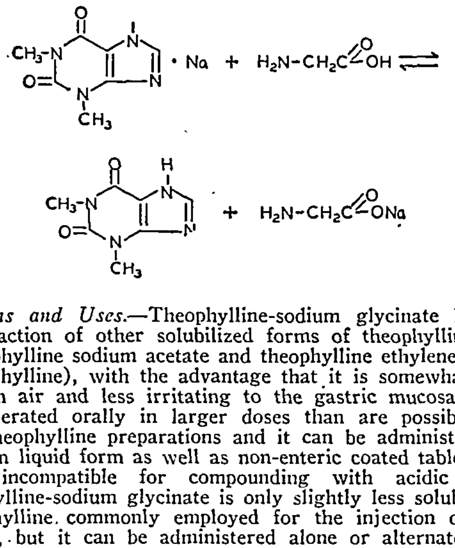
The tablets may be assayed by the method described in the monograph on thonzylamine hydrochloride. They contain not less than 95 nor more than 105 per cent of the claimed amount.

Wyeth, Incorporated, Philadelphia 3

Syrup Neohetramine: 6.25 mg. per cc., 475 cc. bottles.

Tablets Neohetramine: 25 mg., 50 mg. and 100 mg.

THEOPHYLLINE-SODIUM GLYCINATE.—"Glynazan."-First Texas Chemical.—"Glytheonate"-Patch.—"Synophylate"-Central. — "Theoglycinate"-Brayten. — $C_7H_8N_4O_2.C_2H_4NNaO$. — F. W. 491.4. — Theophylline-sodium glycinate contains slightly more than two moles of glycine to one mole of theophylline sodium. It contains not less than 49 nor more than 52 per cent Theophylline-U.S.P. It is considered to exist in a state of equilibrium which may be represented as follows:



Actions and Uses.—Theophylline-sodium glycinate has the typical action of other solubilized forms of theophylline such as theophylline sodium acetate and theophylline ethylenediamine (aminophylline), with the advantage that it is somewhat more stable in air and less irritating to the gastric mucosa. It is thus tolerated orally in larger doses than are possible with other theophylline preparations and it can be administered by mouth in liquid form as well as non-enteric coated tablet form. It is incompatible for compounding with acidic drugs. Theophylline-sodium glycinate is only slightly less soluble than aminophylline, commonly employed for the injection of theophylline, but it can be administered alone or alternated with penicillin as an aerosol for inhalation in the treatment of severe bronchial asthma. Until more evidence becomes available, claims for the uses of theophylline-sodium glycinate are restricted to those recognized for aminophylline; its value in cardiac conditions other than paroxysmal cardiac dyspnea is considered to be unestablished.

Dosage.—Theophylline-sodium glycinate consists of approximately 50 per cent of anhydrous theophylline whereas aminophylline consists of approximately 80 per cent. The dose of theophylline-sodium glycinate would thus be expected to be about one-third more than aminophylline. Orally, either as powder, tablets, elixir or syrup: Adults, 0.3 Gm. to 1.0 Gm.; children over 12 years, 0.15 Gm. to 0.4 Gm., children 6 to 12 years, 0.1 Gm. to 0.2 Gm. every four to six hours. The powder or tablets are preferably administered with water after meals. Suppositories are recommended only for adults until rectal doses for children are established. The adult rectal dose is 0.78 Gm. every 4 to 6 hours. Oral doses for children under 6 years are also unestablished.

Theophylline-sodium glycinate may be administered as an aerosol by nebulization with oxygen of a 5 to 10 per cent solution for inhalation, preferably under a canopy. Nebulization of 2 cc. of such a solution every four hours may be effective in refractory cases of bronchial asthma; very severe dyspnea may require continuous therapy or alternate inhalation of nebulized anti-infective agents such as penicillin.

Tests and Standards.—

Theophylline-sodium glycinate occurs as a white, odorless powder with the characteristic bitter taste of theophylline. It decomposes between 190 and 210 C. It is freely soluble in water and decomposed by acids.

Theophylline-sodium glycinate responds to the tests for Theophylline in *U.S.P. XIII,* p. 565.

Theophylline-Sodium Glycinate Powder: The powder responds to the tests for Theophylline in *U.S.P. XIII,* p. 565.

Theophylline-Sodium Glycinate Tablets: These tablets respond to the tests for Theophylline Tablets in *U.S.P. XIII,* p. 566.

Theophylline-Sodium Glycinate Suppositories: Place 5 suppositories in a beaker containing 50 cc. of water and dissolve them by heating on a steam bath. Cool the beaker in an ice bath until the fatty material congeals. Filter the solution through glass wool into a 250 cc. volumetric flask. Transfer the glass wool and residue to the original beaker. Add 50 cc. of water, heat the beaker on a steam bath, and again cool it in an ice bath and filter the solution through glass wool into the volumetric flask. Repeat the operation once more. Dilute the combined filtrates to volume. Proceed as directed in the *U.S.P. XIII,* p. 566, under the Theophylline assay beginning with "Transfer an accurately measured aliquot of the filtrate . . ."

Brayten Pharmaceutical Company, Chattanooga, Tenn.

Theoglycinate (*Powder*): Bulk. 113 Gm. bottles.

Suppositories Theoglycinate: 0.78 Gm.

Syrup Theoglycinate: 0.13 Gm. per 4 cc., 240 cc. bottles.

Tablets Theoglycinate: 0.325 Gm.

U. S. patent 2,433,765; U. S. trademark 501,300.

The Central Pharmacal Company, Seymour, Ind.

Synophylate (*Powder*): 113 Gm. and 454 Gm. bottles.

Suppositories Synophylate: 0.78 Gm.

Syrup Synophylate: 0.33 Gm. per cc., 480 cc. and 3.84 liter bottles.

Tablets Synophylate: 0.33 Gm.

'Licensed under U. S. patent 2,433,765; U. S. trademark pending.

First Texas Chemical Mfg. Co., Dallas, Texas

Glynazan (*Powder*): 113 Gm. and 454 Gm. bottles.

Elixir Glynazan: 0.26 Gm. per 4 cc., 480 cc. and 3.84 liter bottles.

Syrup Glynazan: 0.13 Gm. per 4 cc., 480 cc. and 3.84 liter bottles.

Tablets Glynazan: 0.324 Gm.

Licensed under U. S. patent 2,433,765; U. S. trademark pending.

The E. L. Patch Company, Boston

Glytheonate (*Powder*): 113 Gm. and 454 Gm. bottles.

Suppositories Glytheonate: 0.78 Gm.

Tablets Glytheonate: 0.324 Gm.

Licensed under U. S. patent 2,433,765; U. S. trademark pending.

AMINOPEPTODRATE.—"Caminoids"-Arlington.—An enzymatic digest of extracted liver and beef muscle, wheat gluten, soya, yeast, casein and lactalbumin with dextrose, maltose and sucrose, containing amino acids and polypeptides equivalent to proteins (N x 6.25) 45% and carbohydrates 40% to provide a total of 350 available calories per 100 Gm.

Actions and Uses.—Aminopeptodrate is used to supplement the diet in conditions in which specially high protein intake is indicated and it is most feasible to accomplish this by use of ordinary foods.

Dosage.—Aminopeptodrate provides the average adult daily protein requirement when administered in amounts of one Gm. per kilogram of body weight per twenty-four hour period. It is administered orally in either hot or cold liquids as suited to the patients.

Arlington Chemical Company, Yonkers, N. Y.

Caminoids: 170.1 Gm., 453.6 Gm., 2.27 Kg. and 4.54 Kg. containers. One tablespoonful (9 Gm.) contains 4 Gm. of protein as partial hydrolysate.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 23, 1949

ATLANTIC CITY SESSION

Again in June the American Medical Association will hold its annual session in Atlantic City. Already indications point to a tremendous attendance—well up to the great numbers of physicians who attended recent sessions in that city. More than 16,000 physicians were registered there in 1947, which was the Centennial meeting. Since the members of the Association may attend the session in 1949 for the first time, a record attendance may be anticipated. Members of the Association will not, of course, participate in the program or take part in the discussions, since these prerogatives are limited to Fellows of the American Medical Association. Members will, however, have full opportunity to attend the various functions, to view the exhibits (both scientific and technical) and to attend meetings of the sections. A special badge will be developed for members who register at the session. Incidentally, the American Medical Association does not require a registration fee from Fellows, members or guests.

The Council on Scientific Assembly and the secretaries of the individual sections have cooperated in the development of an extraordinarily interesting program covering every phase of current interest in the field of medicine. The many scientific sections, which this year include new meetings on allergy, diseases of the chest and the history of medicine, will attract many physicians whose special interests in these fields have not previously been so completely covered. Attention should be called also to the meetings dealing with advancement in medicine and in surgery under the direction and sponsorship of Drs. Roger I. Lee and Frank Lahey of Boston. These two sessions are in themselves a great contribution to graduate medical training. New also will be a special session of the Section on Preventive and Industrial Medicine and Public Health devoted to the timely topic of air pollution. Until the Donora episode, public interest in this subject was casual. Now people are asking about smoke and smog. The engineers and others who are concerned with measures for control seem to be thinking still of smog in terms of a nuisance rather than a public health problem. The symposium on environmental hygiene, directed primarily to this subject and concerning as well the possibility of a relationship between cancer and the inhalation of aromatic hydrogens, may well be one of the outstanding contributions of the annual session.

The usual scientific and technical exhibits will occupy the major portion of the great floor of the Atlantic City Convention Hall, and special exhibits designed for arthritis will be unique. The International Congress on Arthritis and Rheumatic Diseases will meet in New York City just prior to the annual session. Most of the invited guests from other countries will attend the Atlantic City session and participate in the special exhibits and considerations on this subject.

At the Chicago session and the St. Louis session, television was a striking contribution to new methods of visual education. At the Atlantic City session a program involving the use of television for teaching surgery will be unusual. Dr. Ravdin of the University of Pennsylvania will bring patients and equipment to the Atlantic City Hospital, and television in four colors will be available to convention visitors in the Convention Hall. Use of television in making roentgenograms clearer and sharper will be a contribution from the University of Illinois College of Medicine. Investigators found that an extremely high degree of accuracy can be obtained in presenting roentgen ray films on television. The four color surgical television is sponsored by Smith, Kline & French and the Columbia Broadcasting Company. The roentgen ray television is sponsored by E. R. Squibb & Sons and the R.C.A. division of the Radio Corporation of America.

To the usual attractions of Atlantic City, including the famous boardwalk along the ocean, the excellent golf courses and the magnificent hotels, will be added special features by the American Medical Association. A religious service similar to the one of 1947 is planned for Sunday. Also on that day will be a Grass Roots Conference for county medical society secretaries. The House of Delegates will begin its sessions on Monday, and a dinner is planned for Monday night. The opening general meeting on Tuesday night will feature a musical organization, probably the Westminster choir. On Wednesday night a commercial sponsor will offer a program of entertainment with radio stars similar to that which drew a capacity attendance in St. Louis. Also on this night will be the usual alumni, fraternity and specialist dinners. The president's reception will be held as usual on Thursday night. The Woman's Auxiliary has also developed a comprehensive program of discussions, luncheons and dinners. The president of the Woman's Auxiliary will participate in the open general meeting, and members of the Woman's Auxiliary are expected to attend this meeting with their husbands.

So great has been the demand for rooms in Atlantic City that arrangements are being made for special trains and busses to go regularly between Philadelphia and Atlantic City to provide for an overflow attendance. The cities near to Atlantic City will also make their facilities available.

The House of Delegates at the Atlantic City session will be concerned with current problems of great importance to American medicine. A variety of legislation dealing with medical care is under consideration by the House and the Senate. From present indications this legislation will still be in process of hearings by the time of the Atlantic City session and the House of Delegates will have full opportunity to study the views of representatives of most American physicians at that time. Current newspaper reports indicate that President Truman proposes to send his health message to Congress perhaps by the time this editorial is published. That too will be available for consideration by the House of Delegates. The coordinating committee which is in charge of the educational program for the American people on medical care in the United States will no doubt report to the House of Delegates the progress of their activities, as will the special public relations counsel in charge of this work. The Council on National Emergency Medical Service is actively engaged in developing the necessary personnel for the armed forces, and policies of the medical profession in relationship to military service will be considered. The Council on Medical Service has been conducting conferences with representatives of industry, labor, agriculture, insurance and other groups especially concerned with medical care. The report of this Council will no doubt occupy much of the time of the House of Delegates. The Council on Medical Education and Hospitals has begun a new survey of medical education in the United States, and a number of bills have been introduced into the Congress proposing various forms of federal aid to medical education. These policies likewise must be determined by the House of Delegates.

The Atlantic City session will obviously be one of the most important held by the greatest medical organization in the world, and the decisions of that session will be vitally significant in determining the future of medicine in our country.

CANCEROUS MELANOMA

The skin contains dendritic pigment-bearing cells in the lowermost layer known as chromatophores. They are present in greatest abundance in the dark races. In the Caucasian such cells are rarely evident except in localities protected from light, as in the areola of the nipple and the margins of the anus. The same variety of pigment cell occurs normally in the retina and choroid coat of the eye, in the interstices of the ciliary muscle and in the matrix of hairs. The chromatophore sometimes undergoes cancerous transformation, giving rise to a tumor which is extremely vicious —the so-called melanoma or melanotic sarcoma. As the position of the chromatophore among cells is still undetermined, the place of the melanoma among tumors is likewise debatable. Some regard the chromatophore as epithelial, some as endothelial, others as neurogenic and still others as a connective tissue cell. Consequently, the tumor which it causes is variously classified as a carcinoma, endothelioma, malignant neuroma or melanotic sarcoma. Stewart and Bonser [1] described a series of 57 epidermal pigment-forming tumors which they classify as "squamous papillomas, benign calcified epitheliomas, basal cell carcinomas and squamous carcinomas." They maintain, "These tumors have nothing in common with the malignant melanoma of the skin or its benign counterpart, except that they are pigment-forming."

Every one has one or more moles, and every mole is a potential source of a melanoma. The mole is a development characterized, even in the resting state, by an arrangement of chromatophores that bears a resemblance to that of a tumor. In fact, the number, formation and chromatic richness of the cells in many instances are such that a given microscopic field might be mistaken for a tumor with established cancerous qualities rather than an apparently trivial congenital malformation in the skin. The mole undisturbed may never cause trouble; in fact, the great majority maintain innocent quiet. If, however, a mole is located where it is exposed to frequent irritation or, as too often happens, a mole is deliberately subjected to ligation or to the action of escharotics by either the host himself or ignorant meddlers, a growth of highly dangerous qualities may develop. Moreover, cancerous transformation may occur soon after such interference, or it may be postponed for months or even for many years. In short, the skin mole should be left to its own devices or, if removal is considered advisable, the sacrifice of a considerable sweep of apparently healthy skin and subcutaneous tissue should be made.

Rarely in man and oftener in certain of the lower animals, notably in the snout of the pig, curious pigmented nerve end organs are found. These may proliferate to form the so-called neuronevus, a pigmented growth which may or may not be cancerous. In man the neuronevus may involve almost any part of the skin but is perhaps most common in the scalp. Histologically, the growth is composed of nonmyelinated strands arranged in whorl-like fashion resembling the structure of the end organs.

A peculiarity of the melanoma is that it may metastasize to other tumors. In one case of this sort, a myofibroma of the uterus revealed multiple pigmented metastatic deposits; in another case, a cystadenoma of the ovary was similarly metastasized and, in still another case, a fibroadenoma of the female breast showed a solitary metastatic deposit four years after the removal of a melanotic tumor of the eyeball.

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[1] Stewart, M. J., and Bonser, G. M.: Melanin-Forming Epidermal Tumors of the Skin [*sic*]—A Study of 57 Personally Observed Cases, J. of Path & Bact. 60: 21, 1948.

AMINO ACID NEEDS FOR MAINTENANCE

Early in this century, attention of physiologic chemists was turned from a consideration of the quantity of protein required for physiologic well-being to the possible significance of the quality of food proteins. Largely as a consequence of the investigations of Fischer, Hopkins and Osborne and Mendel, the conception became established that for adequate growth certain of the amino acids into which proteins can be degraded through hydrolysis are indispensable, whereas other amino acids can apparently be synthesized by the animal organism itself. Through the more recent studies of Rose and his collaborators the list of these indispensable dietary components has been extended, until now there are ten amino acids recognized as "essential" for the growth of the young of those mammals thus far investigated, provided the rest of the diet is adequate nutritionally. With the generally increasing interest in the welfare of the adult and the aged, attention has been directed to the amino acid requirement for maintenance. An early study [1] on the rat indicated that all of the amino acids needed for growth in this species are also required for maintenance of the fully grown animal. Rose and Rice [2] showed that the adult dog can be maintained in nitrogen equilibrium when only nine of the essential amino acids are present in the ration. Later it was recorded [3] that of the ten amino acids needed for growth only six were required to maintain nitrogen balance in the adult rat. Of particular interest is the demonstration [4] that the adult human subject can maintain nitrogen equilibrium on only eight of the so-called "essential" amino acids. More recent studies have been carried out in an effort to define more clearly the nitrogenous needs for maintenance. With the regeneration of plasma proteins as a criterion, nine of the "essential" amino acids sufficed,[5] and, when maintenance of nitrogen balance was the criterion, again the same nine amino acids appeared adequate.[6]

The ten amino acids currently regarded as "essential" on the basis of growth of young laboratory rats are tryptophane, lysine, histidine, valine, threonine, methionine, leucine, isoleucine, phenylalanine and arginine. Arginine appears to be synthesized by the mammals thus far studied, in sufficient quantity to satisfy the physiologic needs for maintenance [7] of the adult. In addition, histidine is not required by the adult human subject. With the advent of widespread clinical use of hydrolyzed proteins and amino acid mixtures, a reliable background of experimental evidence is needed regarding the adequacy of these dietary devices in adult nutrition as well as during growth.

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1. Wolf, P. H., and Corley, R. C.: Am. J. Physiol. **127:** 589, 1939.
2. Rose, W. C., and Rice, E. E.: Science **90:** 186, 1939.
3. Burroughs, E. W.; Burroughs, H. S., and Mitchell, H. H.: J. Nutrition **19:** 363, 1940.
4. Holt, L. E., Jr.; Albanese, A. A.; Brumback, J. E.; Kadji, C., and Wangerin, D. M.: Proc. Soc. Exper. Biol. & Med. **48:** 726, 1941. Rose, W. C.; Haines, W. J.; Johnson, J. E., and Warner, D. T.: Letters to the Editors, J. Biol. Chem. **148:** 457, 1943.
5. Benditt, E. P.; Humphreys, E. M.; Straube, R. L.; Wissler, R. W., and Steffee, C. H.: J. Nutrition **33:** 85, 1947.
6. Wissler, R. W.; Steffee, C. H.; Frazier, L. E.; Woolridge, R. L., and Benditt, E. P.: J. Nutrition **36:** 245, 1948.
7. Rose and Rice.[2] Benditt and others.[5] Wissler and others.[6]

Current Comment

DOCTORS DO NOT LIVE LONGER

Elsewhere in this issue is a discussion of the leading causes of death among physicians in 1948. This analysis of the obituaries published in THE JOURNAL during 1948 shows that heart disease is still an occupational hazard of the medical profession. When allowance is made for the peculiar age distribution of the physician population, the average age at death is about the same as it would be for white males of the same ages chosen at random from the general population, although the pattern of causes of death is different. The present study confirms the earlier study by Dublin and Spiegelman which was based on the mortality of physicians during the five year period 1938-1942. Apparently the members of the medical profession cannot give their fellow members longer life than their patients enjoy. Physicians as a class enjoy the best of medical care; yet they do not live longer than other white males.

KNOW THYSELF

Recently Franz Alexander,[1] writing on "Emotional Maturity," emphasized that the Greek maxim "Know thyself" may once have been a luxury but has today become a necessity. If the world and the individual were both stable the application of fixed automatic patterns could insure harmonious adaptation to conditions. Adults who live under extremely stable conditions would not need the great ability in flexible adaptation necessary in a rapidly changing environment. In the feudal period in Europe when conditions and customs remained the same from generation to generation and the place of each person was rigidly determined by society, the same behavior patterns handed down from parent to child provided for sufficient adaptability. However, in the present industrial era rapid social change, which has been described as the most conspicuous feature of present times, requires that each person make several rapid readjustments to changing material and ideologic situations. Therefore, the comforts of life according to well tested traditions cannot be enjoyed by man in the modern era. In order to make the proper readjustment people must become more aware of themselves, their desires, impulses, motives and needs; in other words, more self reliant and more mature. Only by the development of personal security through self knowledge can the productive state of mind be reached which will allow each person to turn his interest outward toward the problems of his environment. As adaptability is the faculty of the conscious ego, the aim of psychoanalysis is to increase the effectiveness of the conscious ego by replacing automatic adaptations and repressions by conscious and flexible adjustments. The increasing complexities of modern life require increasing attention and effort by each person to reach and maintain emotional security. Lack of such security leads to confusion, fear and a tendency to regress to dependent ways of childhood, where security lies in unthinking, unquestioning, obedience.

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1. Alexander, F.: Emotional Maturity, Ment. Health Bulletin **26:** 1-4 (Nov.-Dec.) 1948.

THE ATLANTIC CITY SESSION

AMERICAN MEDICAL ASSOCIATION, NINETY-EIGHTH ANNUAL SESSION
ATLANTIC CITY, JUNE 6-10, 1949

OFFICIAL CALL

To the Officers, Fellows and Members of the American Medical Association

The ninety-eighth annual session of the American Medical Association will be held in *Atlantic City, N. J., June 6-10, 1949.*

The House of Delegates will convene at 10 a. m. Monday, June 6. In the House the representation of the various constituent associations for 1949 is as follows:

Alabama	2	New Hampshire	1
Arizona	1	New Jersey	5
Arkansas	2	New Mexico	1
California	10	New York	23
Colorado	2	North Carolina	3
Connecticut	3	North Dakota	1
Delaware	1	Ohio	8
District of Columbia	2	Oklahoma	2
Florida	2	Oregon	2
Georgia	3	Pennsylvania	11
Idaho	1	Rhode Island	1
Illinois	10	South Carolina	2
Indiana	4	South Dakota	1
Iowa	3	Tennessee	3
Kansas	2	Texas	7
Kentucky	2	Utah	1
Louisiana	2	Vermont	1
Maine	1	Virginia	3
Maryland	2	Washington	3
Massachusetts	7	West Virginia	2
Michigan	5	Wisconsin	3
Minnesota	4	Wyoming	1
Mississippi	2	Alaska	1
Missouri	4	Hawaii	1
Montana	1	Isthmian Canal Zone	1
Nebraska	2	Puerto Rico	1
Nevada	1		

The scientific sections of the American Medical Association, the Medical Corps of the Army, the Medical Corps of the Navy, the Public Health Service and the Veterans Administration are entitled to one delegate each.

The Scientific Assembly of the Association will open with the General Scientific Meetings to be held Monday, June 6, starting at 2 p. m. and continuing throughout the morning and afternoon of Tuesday, June 7. The Inauguration Meeting at which the President will be installed will be held on Tuesday, June 7, starting at 8 p. m. The sections will meet Wednesday, Thursday and Friday, June 8, 9 and 10, as follows:

CONVENING AT 9 A. M.
THE SECTIONS ON

Internal Medicine.
Obstetrics and Gynecology.
Laryngology, Otology and Rhinology. (No Friday meeting)
Pathology and Physiology.
Orthopedic Surgery.
Urology.
Preventive and Industrial Medicine and Public Health.
Anesthesiology.
General Practice of Medicine.
Miscellaneous Topics:
Sessions on Physical Medicine; Session on Allergy.

CONVENING AT 2 P. M.
THE SECTIONS ON

Pediatrics.
Surgery, General and Abdominal.
Ophthalmology.
Experimental Medicine and Therapeutics.
Nervous and Mental Diseases.
Dermatology and Syphilology.
(No Friday meeting)
Gastro-Enterology and Proctology.
Radiology.
Diseases of Chest. (No Friday meeting)

The Registration Bureau, which will be located in the Convention Hall will be open from 8:30 a. m. until 5:30 p. m. Monday, Tuesday, Wednesday and Thursday, June 6, 7, 8 and 9, and from 8:30 a. m. to 12 noon Friday, June 10.

R. L. SENSENICH, President.
F. F. BORZELL, Speaker, House of Delegates.
GEORGE F. LULL, Secretary.

MEMBERS OF THE HOUSE OF DELEGATES

A Preliminary Roster of the Legislative Body of the American Medical Association

The list of members of the House of Delegates for the session is incomplete. The following is a list of the holdover members of the House of Delegates and of the newly elected members who have been reported to the Secretary in time to be included:

STATE DELEGATES

ALABAMA
Lloyd Noland, Fairfield
Carl A. Grote, Huntsville

ARIZONA
Jesse D. Hamer, Phoenix

ARKANSAS
William R. Brooksher, Fort Smith

CALIFORNIA
Robertson Ward, San Francisco
Samuel J. McClendon, San Diego
Lowell S. Goin, Los Angeles
John Winston Green, Vallejo
H. Gordon MacLean, Oakland
E. Vincent Askey, Los Angeles
John W. Cline, San Francisco
Donald Cass, Los Angeles
Ralph B. Eusden, Long Beach

COLORADO
George A. Unfug, Pueblo
William H. Halley, Denver

CONNECTICUT
Thomas P. Murdock, Meriden
Joseph H. Howard, Bridgeport
Creighton Barker, New Haven

DELAWARE
James Beebe, Lewes

DISTRICT OF COLUMBIA
Coursen B. Conklin, Washington
Herbert P. Ramsey, Washington

FLORIDA
Louis M. Orr II, Orlando
Homer L. Pearson Jr., Miami

GEORGIA
Allen H. Bunce, Atlanta
Benjamin H. Minchew, Waycross

IDAHO
H. B. Woolley, Idaho Falls

ILLINOIS
Rollo K. Packard, Chicago
Charles H. Phifer, Chicago
G. Henry Mundt, Chicago
Bernard Klein, Joliet
Willis I. Lewis, Herrin

INDIANA
William M. Cockrum, Evansville
Albert M. Mitchell, Terre Haute
Homer G. Hamer, Indianapolis
E. S. Jones, Hammond

IOWA
Thomas F. Thornton, Waterloo
George Braunlich, Davenport
Gerald V. Caughlan, Council Bluffs

KANSAS
John M. Porter, Concordia
Philip W. Morgan, Emporia

KENTUCKY
Clark Bailey, Harlan
Joshua B. Lukins, Louisville

LOUISIANA
James Q. Graves, Monroe
Val H. Fuchs, New Orleans

MAINE
Thomas A. Foster, Portland

MARYLAND
Jacob W. Bird, Sandy Spring
Warde B. Allan, Baltimore

MASSACHUSETTS
Charles J. Kickham, Brookline
Leland S. McKittrick, Brookline
Patrick J. Sullivan, Dalton
John J. Curley, Leominster
Walter G. Phippen, Salem
Frank W. Snow, Newburyport
Earle M. Chapman, Boston

MICHIGAN
Leo G. Christian, Lansing
William A. Hyland, Grand Rapids
Wyman D. Barrett, Detroit
Thomas K. Gruber, Eloise
Willis H. Huron, Iron Mountain

MINNESOTA
Erling W. Hansen, Minneapolis
George A. Earl, St Paul
William A. Coventry, Duluth
J. Arnold Bargen, Rochester

MISSISSIPPI
James P. Wall, Jackson
Felix J. Underwood, Jackson

MISSOURI
Howard B. Goodrich, Hannibal
Warren L. Allee, Eldon

MONTANA
Raymond F. Peterson, Butte

NEBRASKA
Karl S. J. Hohlen, Lincoln
Joseph D. McCarthy, Omaha

NEVADA

Roland W. Stahr, Reno

NEW HAMPSHIRE

Deering G. Smith, Nashua

NEW JERSEY

Joseph F. Londrigan, Hoboken
William F. Costello, Dover
J. Wallace Hurff, Newark
David B. Allman, Atlantic City
Thomas K. Lewis, Camden

NEW MEXICO

John F. Conway, Clovis

NEW YORK

John J. Masterson, Brooklyn
J. Stanley Kenney, New York
Thomas A. McGoldrick, Brooklyn
Andrew A. Eggston, Mount Vernon
Peter J. DiNatale, Batavia
George W. Kosmak, New York
Stephen R. Monteith, Nyack
Joseph P. Henry, Rochester
Scott Lord Smith Poughkeepsie
Thomas M. D'Angelo, Flushing
Walter P. Anderton, New York
Albert F. R. Andresen, Brooklyn
James R. Reuling, Bayside
Floyd S. Winslow, Rochester
Herbert H. Bauckus, Buffalo
Thomas M. Brennan, Brooklyn
Ralph T. B. Todd, Tarrytown
William B. Rawls, New York
Edward P. Flood, New York
Leo F. Schiff, Plattsburg
W. Guernsey Frey Jr., New York
B. Wallace Hamilton, New York
Clarence G. Bandler, New York

NORTH CAROLINA

Roscoe D. McMillan, Red Springs
Charles F. Strosnider, Goldsboro
George Grady Dixon, Ayden

NORTH DAKOTA

Glenn W. Toomey, Devils Lake

OHIO

L. Howard Schriver, Cincinnati
Clifford C. Sherburne, Columbus
Frank M. Wisely, Findlay
Edgar P. McNamee, Cleveland
Carl A. Lincke, Carrollton
George A. Woodhouse, Pleasant Hill
William M. Skipp, Youngstown

OKLAHOMA

Charles R. Rountree, Oklahoma City
James Stevenson, Tulsa

OREGON

Edward H. McLean, Oregon City
Raymond M. McKeown, Coos Bay

PENNSYLVANIA

William L. Estes Jr., Bethlehem
James L. Whitehill, Rochester
George S. Klump, Williamsport
Elmer Hess, Erie
James Z. Appel, Lancaster
E. Roger Samuel, Mount Carmel
William Bates, Philadelphia
Francis F. Borzell, Philadelphia
Harold B. Gardner, Pittsburgh
Charles L. Shafer, Kingston
Howard K. Petry, Harrisburg

RHODE ISLAND

Herman A. Lawson, Providence

SOUTH CAROLINA

Hugh P. Smith, Greenville

SOUTH DAKOTA

H. Russell Brown, Watertown

TENNESSEE

Hiram B. Everett, Memphis
Robert B. Wood, Knoxville

TEXAS

Howard R. Dudgeon, Waco
Britton E. Pickett Sr., Carrizo Springs
Edward H. Cary, Dallas
F. J. L. Blasingame, Wharton
Allen T. Stewart, Lubbock
Robert B. Homan Jr., El Paso

UTAH

James P. Kerby, Salt Lake City

VIRGINIA

Henry B. Mulholland, Charlottesville
J. Morrison Hutcheson, Richmond
John M. Emmett, Clifton Forge

WASHINGTON

Ross D. Wright, Tacoma
Raymond L. Zech, Seattle
Donald G. Corbett, Spokane

WEST VIRGINIA

Ivan Fawcett, Wheeling
Walter E. Vest, Huntington

WISCONSIN

William D. Stovall, Madison
Stephen E. Gavin, Fond du Lac
James C. Sargent, Milwaukee

WYOMING

Roscoe H. Reeve, Casper

ALASKA

Paul B. Haggland, Fairbanks

HAWAII

Forrest J. Pinkerton, Honolulu

CANAL ZONE

George R. Wright, Ancon

DELEGATES FROM THE SECTIONS AND GOVERNMENT SERVICES

INTERNAL MEDICINE

Charles T. Stone, Galveston, Texas

SURGERY, GENERAL AND ABDOMINAL

Grover C. Penberthy, Detroit

OBSTETRICS AND GYNECOLOGY

Jean Paul Pratt, Detroit

OPHTHALMOLOGY

William L. Benedict, Rochester, Minn.

LARYNGOLOGY, OTOLOGY AND RHINOLOGY

Gordon F. Harkness, Davenport, Iowa

PEDIATRICS

William Weston, Columbia, S. C.

EXPERIMENTAL MEDICINE AND THERAPEUTICS

Edgar V. Allen, Rochester, Minn.

PATHOLOGY AND PHYSIOLOGY

Leonard W. Larson, Bismarck, N.D.

NERVOUS AND MENTAL DISEASES

Hans H. F. Reese, Madison, Wis.

DERMATOLOGY AND SYPHILOLOGY

Everett C. Fox, Dallas, Texas

PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

Stanley H. Osborn, Hartford, Conn.

UROLOGY

Roy B. Henline, New York

ORTHOPEDIC SURGERY

Edward L. Compere, Chicago

GASTRO-ENTEROLOGY AND PROCTOLOGY

Louis A. Buie, Rochester, Minn.

RADIOLOGY

Byrl R. Kirklin, Rochester, Minn.

ANESTHESIOLOGY

Henry S. Ruth, Haverford, Pa.

GENERAL PRACTICE

Paul A. Davis, Akron, Ohio

UNITED STATES ARMY

George E. Armstrong

UNITED STATES NAVY

Joel T. Boone

PUBLIC HEALTH SERVICE

W. Palmer Dearing

VETERANS ADMINISTRATION

Edward H. Cushing

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Council on Scientific Assembly—Charles H. Phifer, Chicago, 1949; Henry R. Viets, Chairman, Boston, 1950; L. W. Larson, Bismarck, N. D., 1951; Stanley P. Reimann, Philadelphia, 1952; Alphonse McMahon, St. Louis, 1953; and ex officio the President-Elect, the Editor and the Secretary of the Association.

Council on Medical Service—Elmer Hess, Erie, Pa., 1949; Thomas A. McGoldrick, Brooklyn, 1949; Jesse D. Hamer, Phoenix, Ariz., 1950; James R. McVay, Chairman, Kansas City, Mo., 1950; H. B. Mulholland, Charlottesville, Va., 1951; Joseph D. McCarthy, Omaha, 1951; Edward L. Bortz, Philadelphia; R. L. Sensenich, South Bend, Ind.; Walter B. Martin, Norfolk, Va.; George F. Lull, Chicago, Thomas A. Hendricks, Secretary, Chicago.

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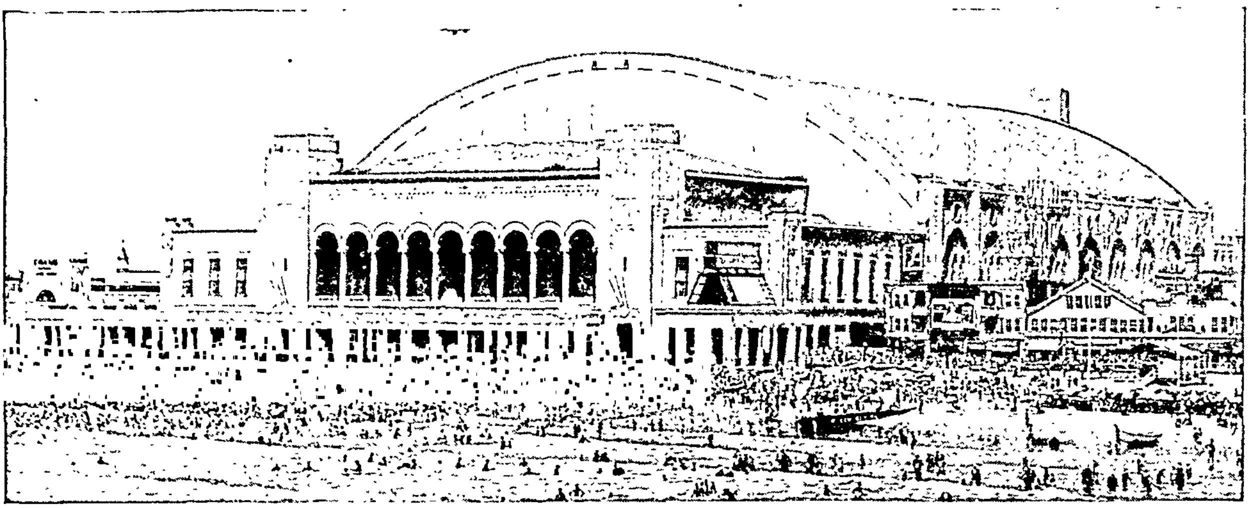
Committee on Scientific Exhibit—E. J. McCormick, Toledo, Ohio; Dwight H. Murray, Chairman, Napa, Calif.; Gunnar Gundersen, La Crosse, Wis.; Thomas G. Hull, Director, Chicago; Advisory Committee—Howard F. Root, Boston; Paul J. Hanzlik, San Francisco Ludvig Hektoen, Chicago; Urban Maes, New Orleans; Max M. Peet*, Ann Arbor, Mich.; James P. Leake, Washington, D. C.

*Deceased



THE CONVENTION HALL WHERE THE ANNUAL SESSION WILL BE HELD.

ATLANTIC CITY—1949

Again in 1949 the American Medical Association convenes in Atlantic City. This place was chosen by the House of Delegates and by the Board of Trustees because it offers the best available hotel facilities and convention auditorium in the United States. No doubt within the next ten years other cities will attempt to provide equal facilities. Thus far, however, no other city has a convention hall in which adequate space is available for the exhibits, the large meetings and the other features of a convention such as that of the American Medical Association.

The hotels of Atlantic City are in themselves one of the greatest attractions. Their glittering beauty excites the imagination. The many rooms that are available both in the Boardwalk hotels and those somewhat removed from the Boardwalk are well furnished, well ventilated and restful. The Boardwalk stretches for many miles along the ocean frontage and the intense activities in attendance on scientific sessions and on the technical and scientific exhibits yield to rest and relaxation by a stroll along the Boardwalk or by occupancy of the chairs propelled by manpower at a not too rapid gait from early morning until long past midnight. Far into the ocean stretch several piers devoted wholly to entertainment, including dancing, circuses, motion pictures and exhibits. At the ends of some of these piers boats are available for fishing. The atmosphere in general is one of gaiety.

Many of the restaurants and cafes of Atlantic City are world known for their cuisine. Any midwestern physician addicted to lobster, crab or any other seafood will find that Atlantic City's cafés and restaurants can provide everything that titillates the palate.

Several golf courses, not too far removed from the Boardwalk hotels, including particularly the famous Seaview Course, will attract the golfers who like courses with hazards based on shifting sand, towering bunkers and deep, deep traps. During the week of the annual session the facilities of these clubs are available to the convention visitors.

The American Medical Association during more than one hundred years of its existence has visited Atlantic City many times, and satisfaction has always been so great that on one occasion an action was taken to meet in Atlantic City every second year. One of the greatest thrills of the convention is to meet a classmate accidentally in the exhibit halls or on the Boardwalk and to exchange reminiscences of earlier days.

Especially significant of the Atlantic City session will be television programs devoted to newer discoveries in the use of the roentgen ray and to surgical procedures. The accessibility of these television programs will be such that many a physician will find himself actually peering over the shoulder of the surgeon as he operates, actually viewing the roentgenogram under conditions far more advantageous than would be possible even in the hospital. In this annual session every technic of visual education thus far established will be utilized for graduate study by the convention visitor. The features for entertainment, for the Woman's Auxiliary, for alumni associations and specialist groups constitute a program of convention features that is in every way the greatest that the medical world offers.

The annual session of 1947, which celebrated one hundred years of activity by the American Medical Association, attracted the largest medical attendance that any convention has ever mustered, including hundreds of visiting physicians from foreign countries. Already there are indications that the 1949 session may be even greater in attendance and in scope.

REGISTRATION

The Bureau of Registration will be located in Convention Hall. An information bureau will be operated in connection with the Bureau of Registration.

Who May Register

Only Fellows, Affiliate, Associate and Honorary Fellows and Invited Guests may register and take part in the work of the sections. Fellows of the Scientific Assembly are those who have, on the prescribed form, applied for Fellowship, subscribed to THE JOURNAL and paid their Fellowship dues for the current year. Fellowship dues and subscription to THE JOURNAL are included in the one annual payment of $12, which is the regular subscription price of THE JOURNAL. Fellowship cards are sent to all Fellows after payment of annual dues, and these cards should be presented at the registration window. Any who have not received cards for 1949 should secure them at once by writing to the American Medical Association, 535 North Dearborn Street, Chicago 10.

Members in Good Standing Eligible to Apply for Fellowship in the Association

Members in good standing in the American Medical Association are those members of component county medical societies and of constituent state and territorial medical associations whose names are officially reported for enrolment to the Secretary of the American Medical Association by the secretaries of the constituent medical associations. All members in good standing may apply for Fellowship in the Scientific Assembly and are urged to qualify as Fellows before leaving home in order that pocket cards may be secured and brought to Atlantic City so that registration can be more easily and more promptly effected.

Application forms may be had on request.

Those subscribers to THE JOURNAL who have not received pocket cards for 1949 should write to the American Medical Association in order to obtain application blanks and information as to further requirements.

Members who do not qualify as Fellows will be permitted to attend meetings but may not register as Fellows for the Scientific Assembly.

Register Early

Fellows living in Atlantic City as well as all other Fellows who are in Atlantic City on Monday and Tuesday, should register as early as possible.

The names and local addresses of those who register will be included in the issue of the *Daily Bulletin* appearing the next day, and this will enable visiting physicians to find friends who have registered.

Suggestions That Will Facilitate Registration

Fellows should fill out completely the spaces on both sections of the front of the registration card. Physicians who desire to qualify as Fellows should fill out completely the spaces on both sections of the front of the registration card and sign the application on the back. These cards will be found on the tables.

Entries on the registration card should be written plainly, or printed, as the cards are given to the printer to use as "copy" for the *Daily Bulletin*, which appears on Tuesday, Wednesday, Thursday and Friday mornings during the week of the session.

Fellows who have their pocket cards with them can be registered with little or no delay. They should present the filled out registration card, together with the pocket card, at one of the windows marked "Registration by Pocket Card." There the clerk will compare the two cards, stamp the pocket card and return it and supply the Fellow with a badge and a copy of the official program.

As previously stated, it will assist in the registration if those who desire to qualify as Fellows will file their applications and qualify as Fellows by writing directly to the American Medical Association, 535 North Dearborn Street, Chicago 10, so that their Fellowship may be entered not later than May 6. Any applications that are received later than May 6 will be given prompt attention, but the Fellowship pocket card may not reach the applicant in time for him to register at the Atlantic City session.

It will be possible for members of the organization to qualify as Fellows at Atlantic City. In order to do this, applicants for Fellowship will be required to fill out both sections of the front of the registration card and to sign the formal application that is printed on the reverse side of the card. It is suggested that those members who apply for Fellowship at Atlantic City bring with them their state membership cards for the year 1949. The state membership card should be presented along with the filled in registration card at the window in the booth marked "Applicants for Fellowship and Invited Guests."

As already stated, registration can be effected more easily and promptly if members will qualify as Fellows before leaving home.

Registration for General Officers and Delegates at the Hotel Traymore

General Officers of the American Medical Association and members of the House of Delegates may register for the Scientific Assembly outside the American Room of the Hotel Traymore. This arrangement is made for the convenience of members of the House of Delegates, which will convene on Monday morning at 10 o'clock in the American Room of the Hotel Traymore. Delegates are requested to register for the Scientific Assembly before presenting credentials to the Reference Committee on Credentials of the House of Delegates. Registration of delegates for the Scientific Assembly will begin at 8 o'clock Monday morning, June 6, and delegates are urged to register early so that all members of the House of Delegates may be seated in time for the opening session of the House. If any delegate is in Atlantic City on Sunday, June 5, he may register for the Scientific Assembly at the American Room of Hotel Traymore.

TRANSPORTATION

It is suggested that those Fellows who contemplate traveling to Atlantic City to attend the annual session of the Association secure information concerning railroad and airplane travel directly from their local ticket agents, who are in a position to give them information regarding train or plane schedules and fares.

International Travel Service, Inc.

A Special A.M.A. Tour Train has been arranged for doctors and their families who plan to attend the convention in Atlantic City in June.

The train leaves Chicago Saturday, June 4, and leaves Atlantic City, Friday, June 10, for New York City, Montreal and Quebec by train and steamer, including the St. Lawrence and Saguenay River trips and motor launch tours of the Thousand Islands, returning to Chicago June 18.

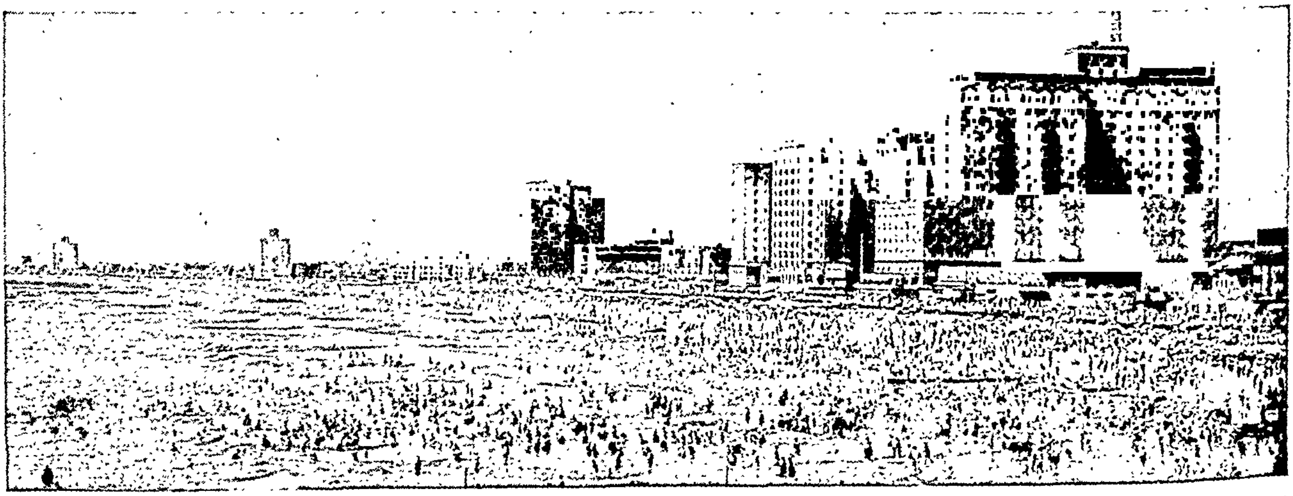
This all-expense trip includes railroad and Pullman as selected, best of hotels, meals, sightseeing, steamer reservations and special arranged programs. This is a de luxe trip, moderately priced from $208. A limited number may join from Atlantic City.

This program is presented by International Travel Service, Inc., Palmer House, Chicago.

Air Travel

The United Air Lines suggests that members fly to Philadelphia on United's Mainliner 300 (DC6), have a limousine or bus meet their plane and take the passengers, with their luggage, directly to their hotel in Atlantic City. The limousine or bus trip takes about two hours. This is the fastest possible service into Atlantic City from the west, except for charter direct.

For further information concerning United Air Lines to Atlantic City in June, please communicate with M. M. Mathews, United Air Lines Building, Chicago 38,



PANORAMA OF THE BOARDWALK IN ATLANTIC CITY, SHOWING BOARDWALK HOTELS THE CONVEN

TELEVISION

UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE PROGRAM IN COLOR

Sponsored by Smith, Kline and French Laboratories

MONDAY, JUNE 6

A. M.

9:00- 9:10 Introductory Remarks.
I. S. RAVDIN, John Rhea Barton Professor of Surgery, University of Pennsylvania.

9:10-10:00 Appendectomy.
DAVID ALLMAN, Surgical Director, Atlantic City Hospital.

10:00-11:00 Cholecystectomy and Choledochotomy.
I. S. RAVDIN.

11:00-12:00 Gastric Resection.
JONATHAN E. RHOADS, Associate Professor of Surgery, University of Pennsylvania.

12:00-12:30 Clinic—Strictures of the Common Bile Duct.
WALTMAN WALTERS, Professor of Surgery, Graduate School, University of Minnesota at the Mayo Foundation, Rochester, Minn.

P. M.

1:30- 3:30 Pediatric Seminar Conducted by JOSEPH STOKES JR., William H. Bennett Professor of Pediatrics, University of Pennsylvania.

1:30- 2:00 The Diagnosis and Treatment of Meningitis in Children.
LEWIS CORRIELL, Instructor in Pediatrics, University of Pennsylvania.

2:00- 2:20 The Technic of Transfusion and Fluid Administration in Infants.
WALLACE W. MCCRORY, Assistant Instructor in Pediatrics, University of Pennsylvania.

2:20- 2:40 The Adrenocortical Syndrome (Cushing's) in a Four Year Old Boy.
ELIZABETH KIRK ROSE, Assistant Professor of Pediatrics, University of Pennsylvania.
F. H. HARVIE, Associate in Pediatrics, University of Pennsylvania.

2:40- 3:10 Congenital Hemolytic Anemias, Demonstration of Patients.
BENJAMIN DICKSTEIN, Assistant Instructor in Pediatrics, University of Pennsylvania, and IRVING J. WOLMAN, Assistant Professor in Pediatrics, University of Pennsylvania.

3:10- 3:30 Demonstration and Interpretation of Skin Tests in Various Infectious Diseases.
AIMS C. MCGUINNESS, Assistant Professor of Pediatrics, University of Pennsylvania.

3:30- 4:00 Psychiatric Case Presentation and Conference.
KENNETH E. APPEL, Professor of Clinical Psychiatry, University of Pennsylvania, and Staff.

TUESDAY, JUNE 7

A. M.

9:00-10:00 Herniorrhaphy.
JAMES MASON, Chief of Service, Atlantic City Hospital.

10:00-11:00 The Manchester Operation for Uterine Descensus.
FRANKLIN L. PAYNE, William Goodell Professor of Obstetrics and Gynecology, University of Pennsylvania.

11:00-12:00 The Surgical Treatment of Coarctation of the Aorta.
JULIAN JOHNSON, Associate Professor of Surgery, University of Pennsylvania.

12:00-12:30 Clinic—Venous Thrombosis.
ARTHUR ALLEN, Lecturer on Surgery, The Harvard Medical School, Boston.

P. M.

1:30- 2:00 Problems in Heart Disease.
C. C. WOLFERTH, Professor of Medicine, University of Pennsylvania, and Staff.

2:00- 4:00 Medical Clinics.
O. H. PERRY PEPPER, Professor of Medicine, University of Pennsylvania, FRANCIS C. WOOD, Professor of Medicine, and Staff.

WEDNESDAY, JUNE 8

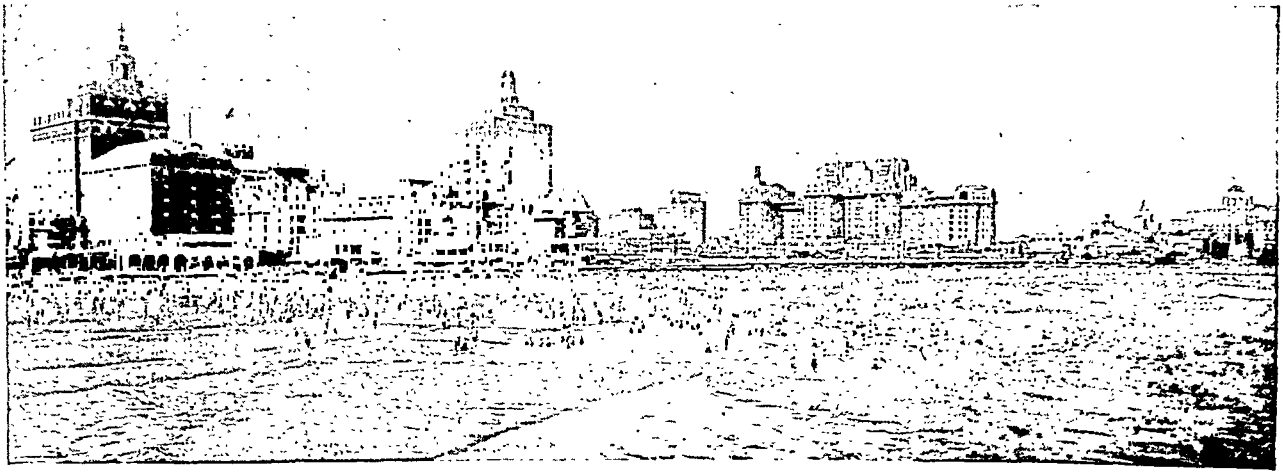
A. M.

9:00-10:00 Caesarean Section.
CARL BACHMAN, Professor of Obstetrics and Gynecology, University of Pennsylvania.

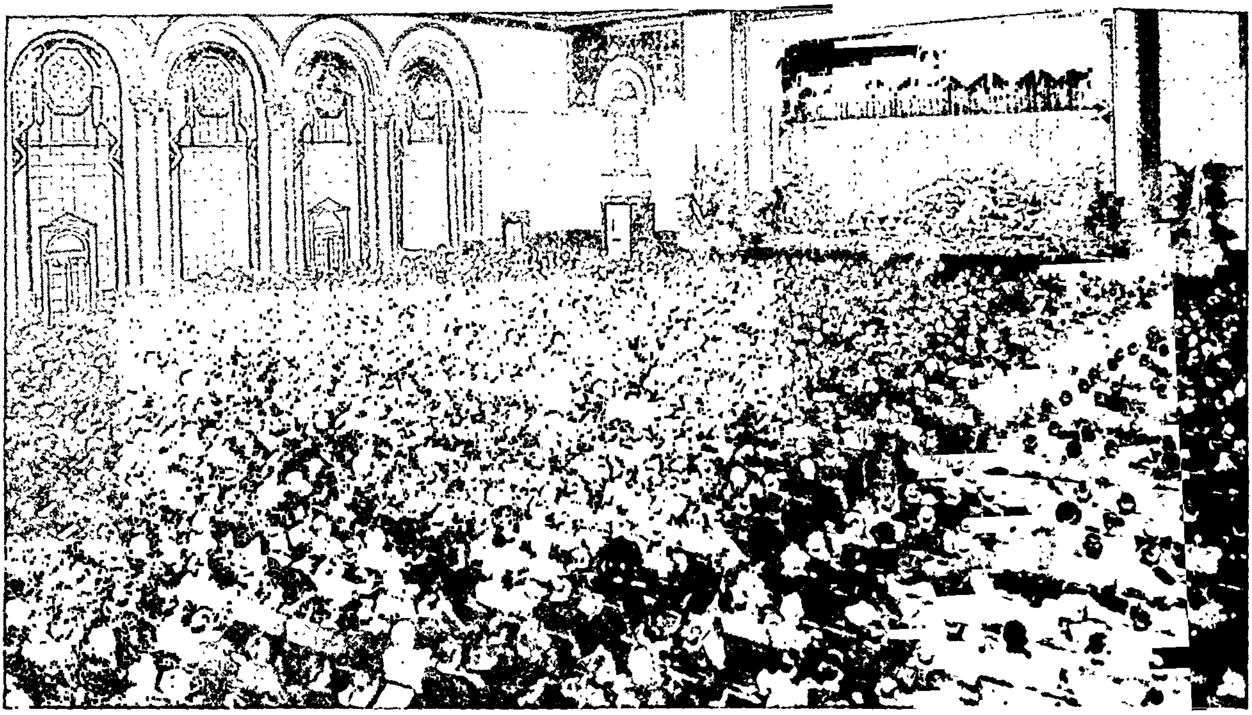
10:00-11:00 Total Hysterectomy.
PAUL O. KLINGENSMITH, Associate in Obstetrics and Gynecology, University of Pennsylvania.

11:00-12:00 Bone Grafting.
PAUL C. COLONNA, Professor of Orthopedic Surgery, University of Pennsylvania.

12:00-12:30 Clinic—The Surgery of Ulcerative Colitis.
HENRY CAVE, Clinical Professor of Surgery, College of Physicians and Surgeons, Columbia University, New York City.



TION AUDITORIUM IS LOCATED AT A CONVENIENT DISTANCE FROM MOST OF THE LARGE HOTELS.



INTERIOR OF THE AUDITORIUM. SCENE OF THE OPENING MEETING AND THE RECEPTION TO THE PRESIDENT.

P. M.

1:30- 2:30 Tumor Conference.

Panel: Chairman, Robert C. Horn, Associate Professor of Surgical Pathology, University of Pennsylvania; I. S. Ravdin; E. P. Pendergrass, Professor of Radiology, University of Pennsylvania; R. H. Chamberlain, Assistant Professor of Radiology, University of Pennsylvania; H. P. Royster, Assistant Professor of Surgery, University of Pennsylvania; H. Beerman, Assistant Professor of Dermatology and Syphilology, University of Pennsylvania; Ralph Jones, Assistant Instructor in Medicine, University of Pennsylvania, and Jeanette M. Shorey, Instructor in Medicine, University of Pennsylvania.

2:30- 2:50 Demonstration of Dermatologic Patients.

Donald M. Pillsbury, Professor of Dermatology and Syphilology, University of Pennsylvania.

2:50- 3:10 Demonstration of Mycologic Methods in Dermatology.

Edward D. Delamater, Research Associate Professor, Department of Dermatology and Syphilology, University of Pennsylvania.

Alfred Kligman, Assistant Instructor in Dermatology and Syphilology, University of Pennsylvania.

3:10- 3:30 Virologic Methods in Dermatology.

G. Douglas Baldridge, Assistant Instructor in Dermatology and Syphilology, University of Pennsylvania.

3:30- 4:00 Subject to be announced.

A. M. Thursday, June 9

9:00-10:00 Prostatectomy.

P. Boland Hughes, Assistant Professor of Urology, University of Pennsylvania.

10:00-11:00 Cranial Trauma.

Francis C. Grant, Professor of Neurosurgery, University of Pennsylvania.

11:00-11:30 Corneal Transplant.

Harold G. Scheie, Assistant Professor of Ophthalmology, University of Pennsylvania.

12:00-12:30 Cancer of the Thyroid.

Clinic: George Crile Jr., Cleveland Clinic.

P. M.

1:30- 2:30 A Demonstration of Some Drug Actions in Various Neurological Disorders.

George D. Gammon, Professor of Clinical Neurology, University of Pennsylvania, and Staff.

2:30- 4:00 The Application of Radioactive Isotopes to Medicine (Demonstration).

Richard H. Chamberlain; Edward W. Chamberlain, Professor of Radiology, Temple University; George C. Henny, Professor of Medical Physics, Temple University; Edith Quimby, Associate Professor of Radiology, Columbia University; Robert Newell, Professor of Radiology, Stanford University; Earl R. Miller, Associate Professor of Radiology, University of California, and Theodore Eberhard, Assistant Professor of Radiology, Jefferson Medical College.

TELEVISION INTERPRETATION OF ROENTGENOGRAMS

Presented by
John S. Garvin, Craig W. Goodwin
and
Roger A. Harvey,
University of Illinois College of Medicine, Chicago

Sponsored by E. R. Squibb and Sons, New York

(Rooms 15 and 16—Second Floor—Convention Hall)

This is a demonstration of viewing roentgenograms by use of a scanning device which functions as a continuously acting densitometer. The electrical output from the scanner is overamplified, and fed into a kinescope as in conventional television. By changing the range and intensity of contrast one can see faint shadows with exactness and clarity. The untrained eye sees objects previously unnoticed, and the roentgenologist can interpret questionable shadows. This permits more exact interpretation and increases the usefulness of roentgenograms. It is applicable to teaching in large lecture halls and operating rooms by exhibiting the details at a distance.

MEETING PLACES

House of Delegates: American Room, Hotel Traymore, Boardwalk at Illinois Avenue.

General Scientific Meetings: Ballroom, Convention Hall.

Inaugural Meeting: Ballroom, Convention Hall.

General Headquarters, Registration Bureau, Scientific Exhibit, Technical Exhibits and Information Bureau: Convention Hall.

SECTIONS OF SCIENTIFIC ASSEMBLY

Internal Medicine: Ballroom, Convention Hall.

Surgery, General and Abdominal: Westminster Hall, Chelsea Hotel, Boardwalk between Morris and Brighton Avenues (Wednesday and Thursday); American Room, Hotel Traymore, Boardwalk at Illinois Avenue (Friday).

Obstetrics and Gynecology: Westminster Hall, Chelsea Hotel, Boardwalk between Morris and Brighton Avenues.

Ophthalmology: Renaissance Room, Ambassador Hotel, Boardwalk at Brighton Avenue.

Laryngology, Otology and Rhinology: Renaissance Room, Ambassador Hotel, Boardwalk at Brighton Avenue (Wednesday and Thursday only).

Pediatrics: Ballroom, Convention Hall.

Experimental Medicine and Therapeutics: Wedgewood Room, Chelsea Hotel, Boardwalk between Morris and Brighton Avenues.

Pathology and Physiology: Wedgewood Room, Chelsea Hotel, Boardwalk between Morris and Brighton Avenues.

Nervous and Mental Diseases: Trellis Room, Ritz-Carlton Hotel, Boardwalk at Iowa Avenue.

Dermatology and Syphilology: Wedgewood Room, Marlborough-Blenheim Hotel, Boardwalk at Ohio Avenue (Wednesday and Thursday only).

Preventive and Industrial Medicine and Public Health: Trellis Room, Ritz-Carlton Hotel, Boardwalk at Iowa Avenue.

Urology: Wedgewood Room, Marlborough-Blenheim Hotel, Boardwalk at Ohio Avenue.

Orthopedic Surgery: St. Dennis Room, Dennis Hotel, Boardwalk at Michigan Avenue.

Gastro-Enterology and Proctology: St. Dennis Room, Dennis Hotel, Boardwalk at Michigan Avenue.

Radiology: Venetian Room, Ambassador Hotel, Boardwalk at Brighton Avenue.

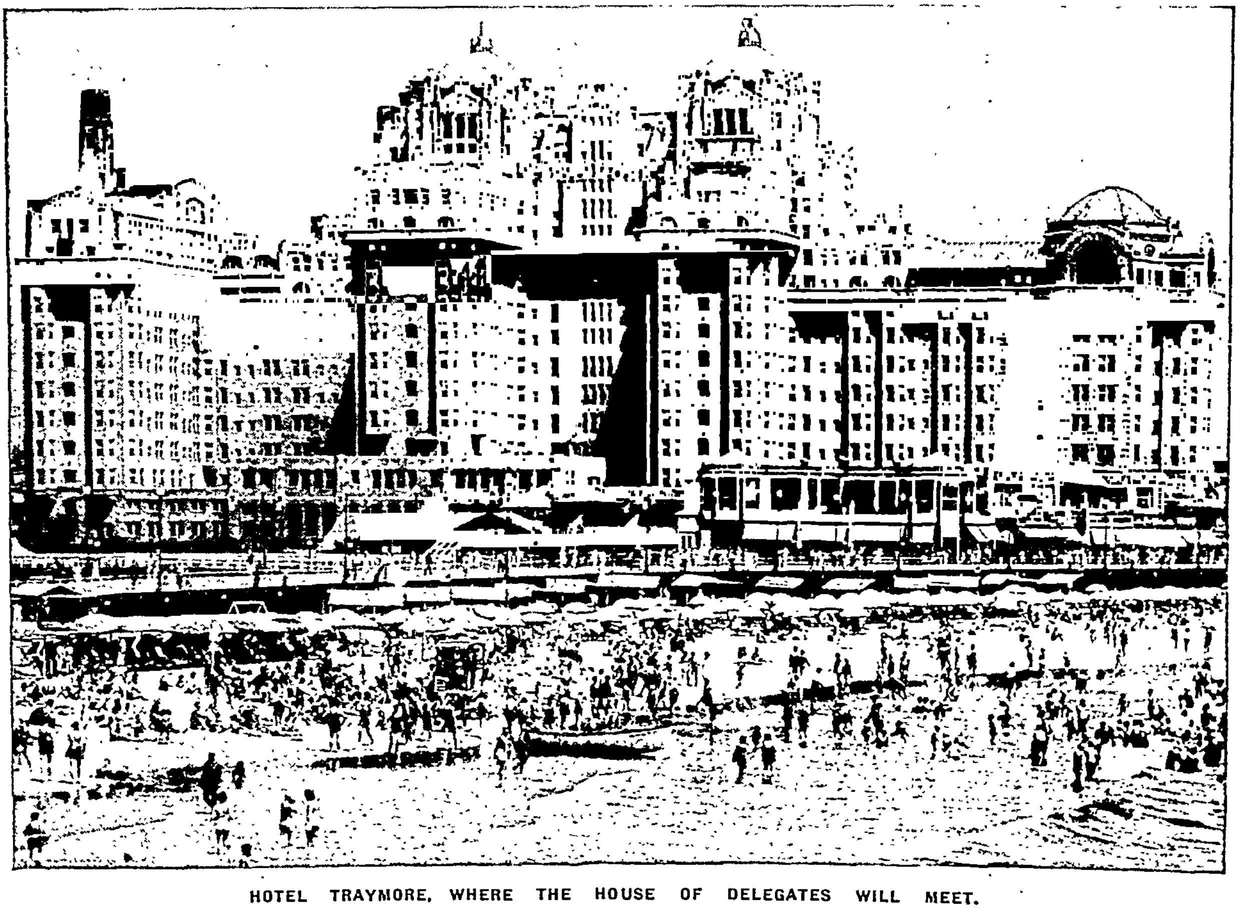
Anesthesiology: Venetian Room, Ambassador Hotel, Boardwalk at Brighton Avenue (Wednesday and Thursday); American Room, Hotel Traymore, Boardwalk at Illinois Avenue (Friday).

General Practice: Trimble Hall, Claridge Hotel, Boardwalk between Indiana and Ohio Avenues.

Diseases of Chest: Trimble Hall, Claridge Hotel, Boardwalk between Indiana and Ohio Avenues (Wednesday and Thursday only).

Miscellaneous Topics: Sessions on Physical Medicine: Ocean Hall, Marlborough-Blenheim Hotel, Boardwalk at Ohio Avenue (Wednesday and Thursday); Session on Allergy: Renaissance Room, Ambassador Hotel, Boardwalk at Brighton Avenue (Friday).

The Convention Hall is located on the Boardwalk between Mississippi and Georgia Avenues.



HOTEL TRAYMORE, WHERE THE HOUSE OF DELEGATES WILL MEET.

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David B. Allman, General Chairman

Hilton S. Read, Co-Chairman

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Samuel L. Salasin
D. Ward Scanlan
C. H. deT. Shivers
Sloan G. Stewart
Harry Subin
Baxter H. Timberlake
Edward F. Uzzell
Clarence B. Whims
Lawrence A. Wilson

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Leonard Erber
Harry S. Hoffman
Philip Marvel Jr.
Irving C. Shavelson
Levi M. Walker

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Jean A. Gruhler
V. Earl Johnson
J. C. McCracken
A. G. Merendino
G. Ruffin Stamps
R. Rostin White

Obstetrics and Gynecology:

Edward F. Uzzell, Chairman

Harold J. Bayer
J. Carlisle Brown
Morris Gottlieb
A. Krechmer
Norman J. Quinn

Ophthalmology:

H. L. Harley, Chairman

Samuel M. Diskan
Benj. L. Gordon
R. D. Harley
J. C. McVay
George Schwarzkopf
Joseph R. Weintrob

Laryngology, Otology and Rhinology:

Baxter H. Timberlake, Chairman

S. Eugene Dalton
Arthur Dintenfass
John Pennington
Charles D. Sinkinson Jr.

Pediatrics:

E. H. Nickman, Chairman

Martin Green
Walter B. Stewart

Experimental Medicine and Therapeutics:

Harold S. Davidson, Chairman

Leonard B. Erber
Charles Hyman
Abraham Krechmer
Clifford Murray
D. Ward Scanlan
Levi M. Walker

Pathology and Physiology:

Frank W. Konzelmann, Chairman

Robert B. Durham
William W. Hersohn

Nervous and Mental Diseases:

Edward Guion, Chairman

Samuel F. Gorson
Werner Hamburger
B. M. Lawther
Matthew Molitch

Dermatology and Syphilology:

Herman Kline, Chairman

William W. Hersohn
William O. Roop

Preventive and Industrial Medicine and Public Health:

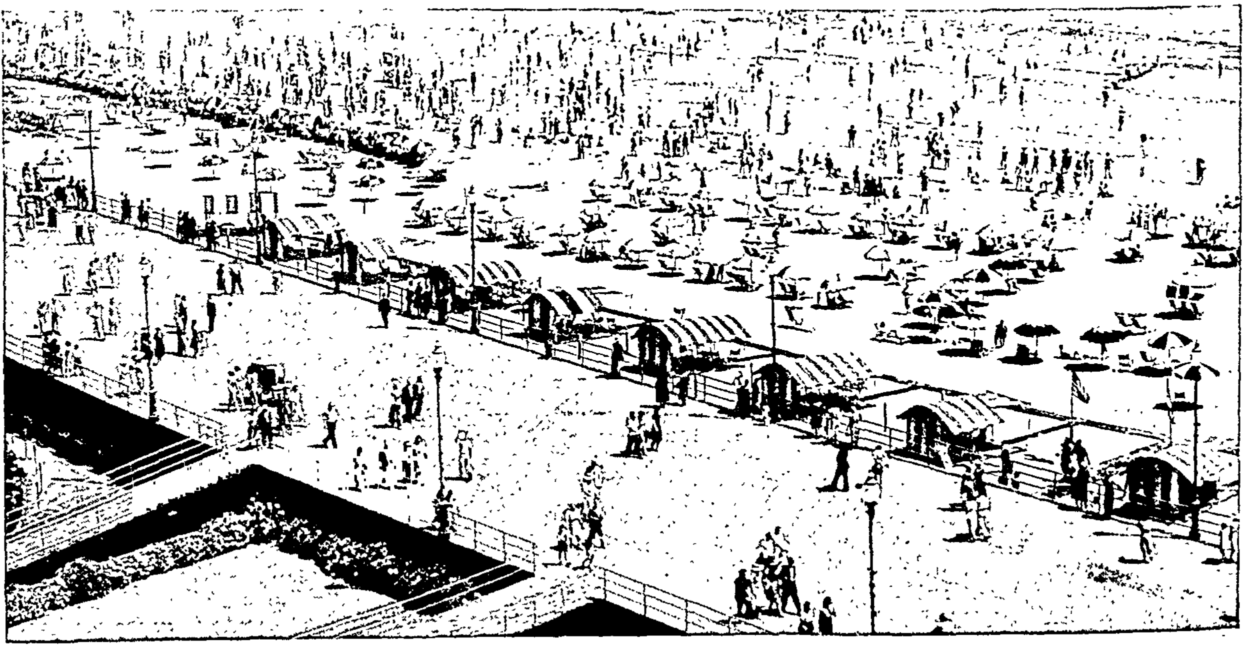
Samuel L. Salasin, Chairman

Robert M. Grier
Samuel Halpern
G. L. Infield
I. E. Leonard Jr.

Urology:

C. H. deT. Shivers, Chairman

M. H. Axilrod
Stanley McGeehen
John Perez
David Scanlan
Daniel C. Reyner



JUST BEACH AND OCEAN AND THE BOARDWALK AND THE SUNLIGHT. THESE MAKE ATLANTIC CITY.

Orthopedic Surgery:

Samuel Halpern, Chairman

Harry L Dein
Louis Feinstein
A. M. Rechtman
Wilson Rise

Gastro-Enterology and Proctology:

M. Browne Holoman, Chairman

Sidney Rosenblatt
Irving Shavelson

Radiology:

Charles B. Kaighn, Chairman

Norman H. Bassett
David Bew
Robert A. Bradley
Leonard S. Ellenbogen

Anesthesiology:

I. E. Leonard Jr., Chairman
John F. Perez

General Practice:

D. W. Scanlan, Chairman

Maurice B. Gordon
John Holland
Leo Kahn
Samuel L. Kaman
Nathan L. Lippman
Allan Rieck
Louis Rosenberg
Isaac Shenfeld
Nathan A. Targan

Subcommittee on Registration and Information

Charles Hyman, Chairman

Ellis H. Allar
Charles H. Baldwin
Robert A. Bradley
F. Sterling Brown
Joseph Cameron
Worth Clark
Bernard Crane
R. J. Dierwechter
S. E. Dalton
Richard M. Fowler
Myrtile Frank
Perry Frank
Martin Green
Louis Goldman
S. Goldstein
Oscar Harris
William W. Hersohn
M. B. Holoman
Leo Kahn
F. J. Kearney Jr.
Frank W. Konzelmann
Abraham Krechmer
I. E. Leonard Jr.
Stanley L. Lucas
Morton M. Major
L. Malis
Peter H. Marvel
A. G. Merendino
Jay Eli Mishler
Joseph L. McGahn
John Naame
A. Paul
Thomas Petinga
Louis Reinhard
Allan Rieck
Louis Rosenberg
Sidney Rosenblatt
Victor M. Ruby
Robert G. Salasin
Samuel L. Salasin
Samuel A. Shuster
Harry Subin
A. S. Terzian
William L. Wagener Jr.
Samuel Weiner
E. S. Woolbert

Subcommittee on Scientific Exhibit

I. E. Leonard Sr., Chairman

Clarence L. Andrews
I. R. Beir
Harold S. Davidson
E. H. Dyer
Samuel Goldstein
Maurice B. Gordon
Max Gross
Edward Guion
William W. Hersohn
Harry S. Hoffman
H. David Holmes
Werner Vandenberg
Raymond A. Williams

Subcommittee on Hotels

Robert A. Bradley, Chairman

Arthur E. Ewens
William W. Fox
Marcus Magill
Samuel E. Weiner

Subcommittee on Publicity and Printing

Edward Guion, Chairman

Ily R. Beir
Bernard Crane

Subcommittee on Transportation

Lawrence A. Wilson, Chairman

Filbert R. Corson
S. E. Dalton
Leonard B. Erber
Richard M. Fowler
J. J. Jacobson
Nathan L. Lippman
B. M. Lawther
H. Donald Marshall
Joseph L. McGahn
Thomas J. Petinga
Victor M. Ruby
Robert G. Salasin
A. S. Terzian
William Wagener Jr.
F. Rolfe Westney

Subcommittee on House of Delegates Dinner

Clarence B. Whims, Chairman

E. H. Dyer
Clifford K. Murray
Sloan G. Stewart
Lawrence A. Wilson

Subcommittee on President's Reception

Hilton S. Read, Chairman

C. C. Charlton
Harold S. Davidson
Samuel L. Salasin
Levi M. Walker
Clarence B. Whims
Lawrence A. Wilson

Subcommittee on Opening General Meeting

Sloan G. Stewart, Chairman

Robert A. Bradley
M. B. Holoman
Levi M. Walker

Subcommittee on Golf

Jean A. Gruhler, Chairman

Samuel Halpern
A. G. Merendino
Sloan G. Stewart
Baxter H. Timberlake
F. Rolfe Westney

Subcommittee on Entertainment of Foreign Guests

C. C. Charlton, Chairman

Roland T. deHellebranth
Vincent J. diNicolantonio
Royal E. Durham
Arthur E. Ewens
William W. Fox
Max Gross
R. Harley
Cesare Milano
Clarence B. Whims

Subcommittee on Clubs and Alumni Reunions

William W. Hersohn, Chairman

Anthony G. Merendino
Thomas J. Petinga
Harry Subin
Samuel L. Winn

Woman's Auxiliary

Honorary Chairman—Mrs. David B. Allman, President-Elect Woman's Auxiliary to the American Medical Ass'n.

General Chairman—Mrs. James H. Mason

Honorary Vice-Chairmen:

Mrs. Robert B. Walker, President
Woman's Auxiliary to Medical Society of N. J.
Mrs. Norman Nathanson, President-Elect
Woman's Auxiliary to Medical Society of N. J.
Mrs. Mabel E. Dodd, Past President
Woman's Auxiliary to Medical Society of N. J.

ENTERTAINMENT

Dinner for Delegates

A dinner is being arranged for Monday, June 6, for members of the House of Delegates and officers of the Association. At this dinner the Joseph Goldberger Award in Clinical Nutrition will be presented to Dr. Randolph West. Complete information concerning the dinner will be available at the first meeting of the House of Delegates on Monday morning, June 6.

Breakfast for Vice Presidents

The Vice Presidents' breakfast will be held at the Brighton Hotel in Atlantic City, June 7, from 7:30 to 9:30 a. m. The host will be Dr. L. H. South.

Installation of President

The Inaugural Meeting at which the President will be installed will be held on Tuesday evening, June 7, in the Ballroom of Convention Hall.

President's Reception and Ball

The President of the Association will be honored with a reception and ball to be held Thursday evening, June 9, at 9 o'clock in the American Room of the Hotel Traymore.

Luncheons, Dinners and Meetings of other Organizations Fraternity and Alumni Organizations

Alpha Kappa Kappa, Luncheon, Ambassador Hotel, Wednesday, June 8, 12:30 p. m.

Alpha Mu Pi Omega, Luncheon, Shelburne Hotel, Wednesday, June 8, 12:30 p. m.

Alpha Omega Alpha, Dinner, Hotel Traymore, Thursday, June 9, 6:30 p. m.

Alumnae Association of the Women's Medical College of Pennsylvania, Dinner, Claridge Hotel, Wednesday, June 8.

Alumni Association of the Long Island College of Medicine, Cocktail party, Hotel Marlborough-Blenheim, West Solarium, Wednesday, June 8, 5 to 7 p. m.

Association of Alumni of College of Physicians and Surgeons of Columbia University, Dinner, Claridge Hotel, Thursday, June 9, 6:30 p. m.

Jefferson Medical College Alumni Association, Luncheon, Hotel Traymore, American Room, Wednesday, June 8.

Loyola University Alumni Association, Dinner, Wednesday, June 8, 6:00 p. m.

Medical Alumni Society of the University of Pennsylvania, Dinner, Hotel Claridge, Wednesday, June 8, 6:30 p. m.

Nu Sigma Nu, Luncheon, Hotel Traymore, Wednesday, June 8, 12 noon.

Percy Jones General Hospital, Dinner, 7 p. m., Monday, June 6. Headquarters: Navajo Room, Haddon Hall. For information write Mrs. Kathryn S. Read, 5407 Atlantic City, N. J.

Phi Beta Pi, Luncheon, Ritz-Carlton Hotel, Wednesday, June 8, 12:30 p. m.

Phi Delta Epsilon, Open House, Brighton Hotel, Wednesday, June 8, 9 p. m. to 12 midnight.

Phi Lambda Kappa, Luncheon for members, wives, and sweethearts, Hotel Strand, Wednesday, June 8, 12:00 noon. For reservations, call Dr. Abraham Krechmer, 400 Pacific Ave., Atlantic City; telephone 4-1818.

Rotary Club, Luncheon, Hackney's Restaurant, June 7, 12:30 p. m.

Rush Medical College Alumni Association, Dinner, Ritz-Carlton Hotel, Wednesday, June 8, 6:30 p. m.

Stanford University Medical Alumni Association, Luncheon, Ritz-Carlton Hotel, 12:30 p. m.

Theta Kappa Psi, Jefferson Hotel, Wednesday, June 8.

University of Louisville Alumni, Cocktail Party and Buffet Dinner, Wednesday, June 8, Brighton Hotel, 5:30 p. m. Alumni are requested to register at the University of Louisville booth in Convention Hall.

WOMAN'S AUXILIARY

Information

A most cordial invitation is extended to all women who are Auxiliary members, or guests of physicians attending the convention of the American Medical Association, to participate in all social functions and attend the general sessions. Whether Auxiliary members or not, wives of doctors will be most welcome.

Auxiliary headquarters will be on the Lounge Floor of Haddon Hall. All meetings and functions will be held at Haddon Hall unless otherwise stated in the program. Please register early and obtain your badge and program of the social functions.

All tickets should be purchased soon after arrival. Members of the Hospitality and Information Committees will be at the hotels. Committee members will gladly help plan an interesting visit in Atlantic City. Tickets will be sold only at Auxiliary headquarters in Haddon Hall. All meetings and social affairs will begin at the time scheduled. Please be prompt.

Registration Hours

Sunday	12 m.	4 p. m.
Monday	9 a. m.	4 p. m.
Tuesday	9 a. m.	4 p. m.
Wednesday	9 a. m.	4 p. m.
Thursday	9 a. m.	12 m.

Acknowledgments

The Woman's Auxiliary to the American Medical Association is pleased to acknowledge the courtesy and generosity of Wyeth, Incorporated, who provided this program for the Annual Meeting.

For the many courtesies extended to the chairmen of the various committees in preparation for the convention, detailed acknowledgment will be published later.

The General Chairman on Convention Arrangements desires to express her sincere appreciation to the members of the Executive Committee, the chairmen, co-chairmen and members of the Convention Committees, and to Mr. Al Skean and the personnel of the Atlantic City Convention Bureau for their splendid cooperation and generous service.

Mrs. James H. Mason,
General Chairman,
Committee on Convention Arrangements.

Preconvention Meetings

Sunday, June 5

12. m. to 4 p. m.	The members of the Hospitality Committee will welcome members and guests of the Woman's Auxiliary.

COMMITTEE MEETINGS

1 p. m.	Nominating Committee, Rowsley Room (first floor). Mrs. Jesse D. Hamer, Chairman.
8 p. m.	Finance Committee, Bakewell Room (first floor). Mrs. Scott C. Applewhite, Chairman.

Monday, June 6

9:30 a. m.	Board of Directors, Room 134 (first floor). Presiding, Mrs. Luther H. Kice, President.

10 a. m. to 12 m. Round Table Discussions:

Hygeia, Mrs. Aldace W. Hammond, Chairman, Room 1344, (thirteenth floor).

Legislation, Mrs. Charles L. Shafer, Chairman, Lounge Floor Solarium.

Program, Mrs. Harry F. Pohlmann, Chairman, Mandarin Room (thirteenth floor).

Public Relations, Mrs. Asher Yaguda, Chairman, Sun Parlor (lounge floor).

12 m. Luncheon and meeting of Board of Directors, Bakewell Room (first floor).

3 p. m. Revisions Committee, Rowsley Room (first floor). Mrs. Roscoe E. Mosiman, Chairman.

4 p. m. to 6 p. m. Tea honoring Mrs. Luther H. Kice, President, and Mrs. David B. Allman, President-Elect, for the members of the National Board of Directors, State Presidents and President-Elect and guests, Garden Room (lounge floor).

Hostesses: The Woman's Auxiliary to the Medical Society of New Jersey.

8:30 p. m. Fashion Show, Ballroom, Convention Hall.

PROGRAM

Tuesday, June 7

9 a. m.

Formal opening of the Twenty-Sixth Annual Meeting of the Woman's Auxiliary to the American Medical Association, Vernon Room, Lounge Floor.

Presiding..................Mrs. Luther H. Kice, President

Invocation............................Rev. Harvey Bennett
Pastor, First Presbyterian Church

Pledge of Loyalty to the Woman's Auxiliary to the American Medical Association...............Mrs. Eustace A. Allen

Greetings.....Hon. Joseph Altman, Mayor of Atlantic City; Browne Holoman, M.D., Pres., Atlantic County Med. Soc.

Address of Welcome...............Mrs. Robert B. Walker
President, Woman's Auxiliary to the Medical Society of New Jersey

Response.............................Mrs. John S. Bouslog
Past President, Woman's Auxiliary to the Colorado State Medical Society

Presentation of Convention Chairman...Mrs. James H. Mason

Introductions..........................Mrs. Luther H. Kice

Presentation of President-Elect.......Mrs. David B. Allman

Roll Call......Mrs. George Turner, Constitutional Secretary

Minutes of the 25th Annual Meeting.....Mrs. George Turner

Convention Rules of Order................Mrs. J. K. Avent

Credentials and Registration.........Mrs. Matthew Molitch

Address of the President..............Mrs. Luther H. Kice

REPORTS OF OFFICERS

President-Elect.......................Mrs. David B. Allman

First Vice President....................Mrs. Ralph Eusden

Second Vice President.............Mrs. William W. Potter

Third Vice President.................Mrs. Lloyd C. Harvie

Fourth Vice President................Mrs. Robert Flanders

Treasurer.........................Mrs. Arthur A. Herold
(including report of the auditor)

Constitutional Secretary................Mrs. George Turner

12:30 p. m.

Luncheon in honor of the past presidents of the Woman's Auxiliary to the American Medical Association, Rutland Room, First Floor. Tickets, $4. Mrs. Luther H. Kice, presiding.

AFTERNOON SESSION

2 p. m.

Report of the Board of Directors......Mrs. Luther H. Kice

Reports of Chairmen of Standing Committees:

Finance.......................Mrs. Scott C. Applewhite

Hygeia.......................Mrs. Aldace W. Hammond

Legislation.....................Mrs. Charles L. Shafer

Organization........................Mrs. Ralph Eusden

Program.....................Mrs. Harry F. Pohlmann

Publications......................Mrs. James P. Simonds

Public Relations...................Mrs. Asher Yaguda

Revisions......................Mrs. Roscoe E. Mosiman

Report of Special Committee:

Reference.......................Mrs. Rollo K. Packard

Report of the Historian..............Mrs. Jesse D. Hamer

Report of the Central Office and Bulletin Circulation
................................Miss Margaret Wolfe

Report of the Nominating Committee (first reading)
......................Mrs. Jesse D. Hamer, Chairman

Election of the 1950 Nominating Committee

4 p. m.

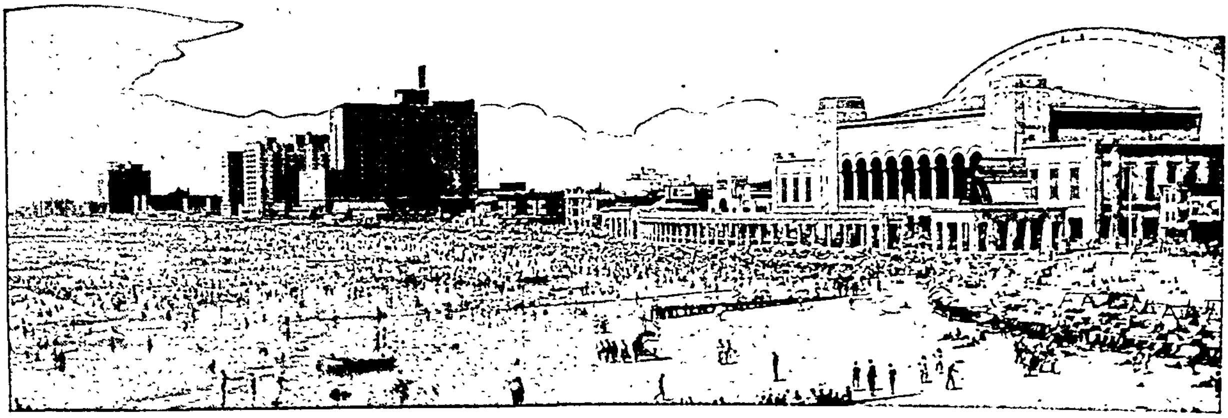
Round Table Discussion (continued):

Hygeia.....................Mrs. Aldace W. Hammond
Room 1344 (thirteenth floor)

Legislation.....................Mrs. Charles L. Shafer
Lounge Floor (Solarium)

Program.....................Mrs. Harry F. Pohlmann
Mandarin Room (thirteenth floor)

Public Relations....................Mrs. Asher Yaguda
Sun Parlor (lounge floor)



THE AUDITORIUM (RIGHT) WITH RITZ CARLTON AND AMBASSADOR HOTELS AND THE PRESIDENT HOTEL TO THE LEFT.

8 p. m.

Inaugural meeting of the American Medical Association, Ballroom, Convention Hall. Members of the Woman's Auxiliary and guests are welcome.

Wednesday, June 8

9 a. m.

General Session of the Woman's Auxiliary to the American Medical Association, Vernon Room, Lounge Floor

Presiding........................Mrs. Luther H. Kice

Minutes............................Mrs. George Turner

Announcements..................Mrs. James H. Mason

Credentials and Registration.....Mrs. Matthew Molitch

In Memoriam......................Mrs. Neil Woodward

Resolutions......................Mrs. Rollo K. Packard

Reports of State Presidents.

12:15 p. m.

Annual Luncheon in honor of Mrs. Luther H. Kice, president, and Mrs. David B. Allman, president-elect, Rutland Room, First Floor. Tickets, $4. Mrs. Frank N. Haggard, presiding.

Guests of Honor: Dr. R. L. Sensenich, President; Dr. Ernest E. Irons, President-Elect; Dr. Elmer L. Henderson, Chairman, Board of Trustees: Dr. J. J. Moore, Treasurer; Dr. George F. Lull, Secretary and General Manager; Dr. Morris Fishbein, Editor, The Journal of the American Medical Association and Hygeia, and the members of the Advisory Council of the Woman's Auxiliary.

1:30 p. m.

Joint meeting of the Advisory Council of the American Medical Association and the Board of Directors of the Woman's Auxiliary, Garden Room (lounge floor).

AFTERNOON SESSION

3 p. m.

Unfinished Business.

New Business.

Report of the Nominating Committee..Mrs. Jesse D. Hamer

Election of Officers.

Installation of Officers and Presentation of President's Pin ....Mrs. David W. Thomas

Inaugural Address.................Mrs. David B. Allman

Convention Courtesy Resolutions..Mrs. Norman Nathanson

Minutes.

Adjournment.

Thursday, June 9

9:30 a. m.

Meeting of the Board of Directors, Solarium, Lounge Floor. Presiding, Mrs. David B. Allman.

10:30 a. m.

Conference of State Presidents, Presidents-Elect, National Officers and Chairmen of Standing Committees, Solarium.

6:30 p. m.

Annual Dinner of the Woman's Auxiliary for members, husbands and guests, Vernon Room, Lounge Floor. Mrs. James H. Mason, presiding. Formal. Tickets, $6.

9 p. m.

Reception and Ball in honor of the President of the American Medical Association, American Room, Hotel Traymore.

Friday, June 10

Exhibits at Convention Hall.

LOCAL COMMITTEE ON CONVENTION ARRANGEMENTS

Honorary Chairman

Mrs. David B. Allman, President-Elect

Woman's Auxiliary to the American Medical Association

General Chairman

Mrs. James H. Mason

Honorary Vice-Chairmen

Mrs. *Robert B. Walker, President*
Mrs. Norman Nathanson, President-Elect
Mrs. William E. Dodd, Past President

Woman's Auxiliary to the Medical Society of New Jersey

Vice Chairmen

Mrs. Harry Subin — Mrs. Robert A. Bradley
Mrs. Louis Rosenberg — Mrs. Daniel Reyner

Secretary-Treasurer

Mrs. Charles Hyman

Publicity

Mrs. Rolfe Westney, Chairman — Mrs. Irving Shavelson, Co-Chairman

Junior Aides

Mrs. *Allan Rieck, Chairman*

Headquarters

Mrs. Robert A. Bradley, Chairman

Supplies and Printing

Mrs. Daniel Reyner, Chairman

Flowers

Mrs. Harry Subin, Chairman

Music

Mrs. Clarence Whims, Chairman

Credentials and Registration

Mrs. Matthew Molitch, Chairman — Mrs. Morton Major, Co-Chairman

Tickets and Reservations

Mrs. Anthony Merindino, Chairman — Mrs. Max Gross, Co-Chairman

Hospitality

Mrs. Samuel Salasin, Chairman — Mrs. P. J. McGahn, Co-Chairman

Information

Mrs. Herbert D. Axilrod, Chairman — Mrs. Perry Frank, Co-Chairman

Tea, Monday, June 6

Mrs. Harry Subin, Chairman — Mrs. Louis Rosenberg, Co-Chairman

Fashion Show, Monday, June 6

Mrs. Clarence B. Whims, Chairman — Mrs. M. Brown Holoman, Co-Chairman

Past Presidents' Luncheon, Tuesday, June 7

Mrs. Edward H. Dyer, Chairman — Mrs. Baxter H. Timberlake, Co-Chairman

Annual Luncheon, Wednesday, June 8

Mrs. G. Ruffin Stamps, Chairman — Mrs. Lawrence Wilson, Co-Chairman

Annual Dinner, Thursday, June 9

Mrs. Robert A. Bradley, Chairman — Mrs. Daniel C. Reyner, Co-Chairman

Convention *Committees*

Election..............................Mrs. Benjamin Gillette

PHYSICIAN-ARTISTS

If you plan to exhibit at the Atlantic City Exhibition (American Medical Association, June 6-10, 1949) now is the time to write for entry blanks, rules, shipping labels, etc. Haste is necessary because your entries must reach Atlantic City sometime during the period April 15 to May 9. For details, please write air mail to Francis H. Redewill, M.D., Secretary, American Physicians Art Association, Flood Building, San Francisco, Calif.

GOLF TOURNAMENT

The American Medical Golfing Association will hold its thirty-third tournament on Monday, June 6. The nationally famous and beautiful Seaview Country Club at Absecon, N. J., has been reserved for the medical golfers' tournament. Dinner will be served at Seaview at 7 p. m., followed by presentation of the many trophies and prizes.

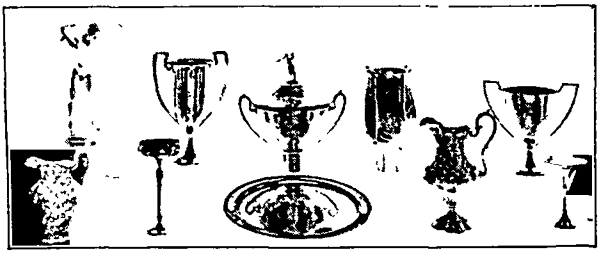
Two Courses

Seaview has two sporty courses, one of eighteen holes located on the edge of the water, called the Bay Course, and the other of nine holes located in a wooded section of the terrain, called the Woods Course. The Bay Course will be utilized by golfers playing only eighteen holes. while both the Bay Course and the Woods Course will test the ability of the thirty-six hole golfers.

Fellows may tee off between 7:30 a. m. and 2 p. m. Luncheon will be served at the club. Entertainment will be held during and after the golfers' banquet at 7 p. m.

Trophies and Prizes

Trophies will be awarded for the Association championship (thirty-six holes), the Will Walter Trophy; to the runner-up champion, the Detroit Trophy; for the eighteen hole championship, the Golden State Trophy; to the runner-up eighteen hole champion, the Ben Thomas Trophy. The Section event will include sterling silver pitchers for such sections as Internal Medicine, Surgery, Gynecology and Obstetrics, Dermatology and Syphilology, General Practice, etc. The first flight (0 to 13) will contain trophies and prizes for both gross and net in thirty-six and eighteen holes, including the St. Louis Trophy, the President's Trophy, the Atlantic City Trophy and the Sperry Trophy. The second and third flights (14 to 18 and 19 to 30) will contain prizes for both thirty-six and eighteen holes; the maturity event (for Fellows 60 years and older), the Minneapolis Trophy, and the Old Guard Championship, the Wendell Phillips Trophy. In addition to these, approximately seventy-five other prizes will be in competition.



Trophies awarded at Recent Annual Tournaments of American Medical Golfing Association

Ten trophies of the American Medical Golfing Association are on permanent display at the American Medical Association headquarters in Chicago.

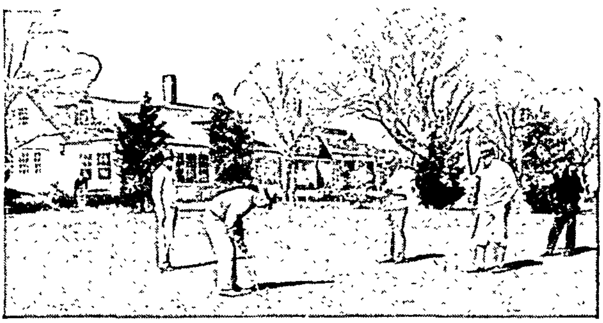
Atlantic City Committee on Arrangements

The Atlantic City Committee on Arrangements is under the Chairmanship of Jean A. Gruhler, 1616 Pacific Avenue, Atlantic City. He is being assisted by Samuel Halpern, A. G. Merendino, Sloan G. Stewart, Baxter H. Timberlake and F. Rolfe Westney, all of Atlantic City, and by D. H. Houston, Seattle, Permanent Chairman of the Advisory Committee.

Applications for Membership

The Atlantic City Tournament will give an opportunity to American Medical Golfing Association Fellows, and to those who join the Association in 1949, to enjoy a wonderful day of golf, to win a nice prize and to join in the famous good fellowship of the American Medical Golfing Association.

All male Fellows of the American Medical Association are cordially invited to become Fellows of the American Medical Golfing Association and execute the application blank at the end of the notice of the Golf Tournament and mail it to Secretary Bill Burns, 2020 Olds Tower, Lansing 8, Mich. Participants in the tournament are required to present their home club handicap, signed by the club secretary—or to accept a handicap set by the American Medical Golfing Association Handicap Committee. No handicap over 30 is allowed. All eighteen hole trophies and prizes are awarded on the basis of scores for the first eighteen holes played. A Fellow absent from the annual banquet following the tournament forfeits his rights to a trophy or prize.



The Atlantic City Golf Club where the Annual Tournament was held in 1947.

Officers of the American Medical Golfing Association

W. C. Speidel, Seattle, is President; C. E. Shannon, Chicago, is President Elect; J. A. Gruhler, Atlantic City, is First Vice President and Director of Handicaps, and I. N. Tucker, New Orleans, is Second Vice President and Director of Arrangements. Waltman Walters, Rochester, Minn., is the most recent addition to the Advisory Committee of Past Presidents.

President Bill Speidel anticipates that approximately two hundred and seventy-five American Medical Golfing Association Fellows will play in the enjoyable Atlantic City Tournament at Seaview Country Club on Monday, June 6.

Mail following application blank to Bill Burns, Secretary, 2020 Olds Tower, Lansing 8, Michigan.

Player's Name........................ Home Address..............
Specialty.............. Age: Under 60 ☐ Over 60 ☐
Home Course........................ Par of Course....
Player's Club Handicap......
New 1949 AMGA Fellows Check Here ☐

ALL PROSPECTIVE PLAYERS, BOTH FELLOWS AND NEW 1949 MEMBERS, ARE REQUESTED TO EXECUTE APPLICATION BLANK

PROGRAM OF THE SCIENTIFIC ASSEMBLY

RELIGIOUS SERVICES

Sunday, June 5—11 a. m.

Religious services will be held by distinguished Catholic, Jewish and Protestant clergymen to be announced later.

GENERAL SCIENTIFIC MEETINGS

BALLROOM, CONVENTION HALL

Monday, June 6—2 p. m.

L. W. Larson, Member, Council on Scientific Assembly, Presiding

2:00 p. m. **Fractures: A Fifty-Year Review of Teaching and Treatment.** Kellogg Speed, Chicago.
2:45 p. m. **Rheumatic Diseases.** W. Paul Holbrook, Tucson, Ariz.
3:30 p. m. **Genetics and the Chemistry of Growth.** Jack Schultz, Philadelphia.
4:00 p. m. **Dynamic Approach to Chronic Disease.** Howard A. Rusk, New York.
4:40 p. m. ***Motion Picture:* "They Also Serve. The Physician's Responsibility in the Event of a Major Disaster."** James C. Sargent, Milwaukee, and Col. W. L. Wilson, Medical Corps, United States Army.

Tuesday, June 7—9 a. m.

Charles H. Phifer, Member, Council on Scientific Assembly, Presiding

MODERN DEVELOPMENTS IN SURGERY

9:00 a. m. **Heart and Great Vessels.** Alfred Blalock, Baltimore.
9:30 a. m. **Lungs and Esophagus.** Richard H. Sweet, Boston.
10:00 a. m. **Preoperative and Postoperative Care.** Frederick A. Coller, Ann Arbor, Mich.
10:30 a. m. **Antibiotics.** Champ Lyons, New Orleans.
11:00 a. m. **Anesthesia.** Ralph M. Tovell, Hartford, Conn.
11:30 a. m. **Summary.** Frank H. Lahey, Boston.

Tuesday, June 7—2 p. m.

Alphonse McMahon, Member, Council on Scientific Assembly, Presiding

MODERN DEVELOPMENTS IN MEDICINE

2:00 p. m. **Antibiotics.** Perrin H. Long, Baltimore.
2:30 p. m. **Hormones in the Treatment of Cancer.** Charles Huggins, Chicago.
3:00 p. m. **Isotopes.** John H. Lawrence, Berkeley, Calif.
3:30 p. m. **Nutrition.** Frederick J. Stare, Boston.
4:00 p. m. **Liver Disease.** C. J. Watson, Minneapolis.
4:30 p. m. **Summary.** Roger I. Lee, Boston.

THE INAUGURAL MEETING

BALLROOM, CONVENTION HALL

Tuesday, June 7—8 p. m.

Music.
Call to Order by the President. R. L. Sensenich, South Bend, Ind.
Invocation. Rev. George W. Lawrence.
Music.
Announcements. David B. Allman, Chairman, Local Committee on Arrangements.
Introduction and Installation of President-Elect Ernest E. Irons.
Address. Ernest E. Irons, President.
Address. Dr. Frank B. Wynn, Founder of the Scientific Exhibit. William N. Wishard Jr., Indianapolis.
Address. Brig. Gen. Crawford W. Sams, U. S. A.
Music.
Presentation of Medal to Retiring President, R. L. Sensenich. Elmer L. Henderson, Chairman, Board of Trustees.
Presentation of Distinguished Service Medal. Ernest E. Irons, President.
Music.

THE PROGRAMS OF THE SECTIONS

Outline of the Scientific Proceedings

The following papers are announced to be read before the various sections. The order here is not necessarily the order that will be followed in the Official Program. The Official Program will be similar to the programs issued in previous years and will contain the final program of each section with abstracts of the papers, as well as lists of committees, program of the Inaugural Meeting, list of entertainments and other information. To prevent misunderstandings and protect the interest of advertisers, it is here announced that this Official Program will contain no advertisements. It is copyrighted by the American Medical Association and will not be distributed before the session. A copy will be given to each Fellow on registration.

SECTION ON INTERNAL MEDICINE

MEETS IN BALLROOM, CONVENTION HALL

OFFICERS OF SECTION

Chairman—M. A. Blankenhorn, Cincinnati.
Vice Chairman—Priscilla White, Boston.
Secretary—Walter L. Palmer, Chicago.
Executive Committee—Joseph T. Wearn, Cleveland; Cecil J. Watson, Minneapolis; M. A. Blankenhorn, Cincinnati.

Wednesday, June 8—9 a. m.

The Diagnostic Value of Cardiac Auscultation. Samuel A. Levine, Boston.
Discussion to be opened by Howard B. Sprague, Boston.

Neurocirculatory Asthenia (Anxiety Neurosis, Effort Syndrome): A Twenty-Year Follow-Up Study of 173 Patients.
E. O. Wheeler, P. D. White, E. W. Reed and M. E. Cohen, Boston.
Discussion to be opened by Arthur M. Master, New York, and Maurice H. Greenhill, Durham, N. C.

The Role of Coronary Vasodilating Drugs in Coronary Occlusion.
N. C. Gilbert, G. K. Fenn and L. A. Nalefski, Chicago.
Discussion to be opened by Roy W. Scott, Cleveland, and W. M. Fowler, Iowa City.

The Frank Billings Lecture: Osler and the American Medical Association. Reginald Fitz, Boston.

Bacteremia Following Tooth Extraction: Prevention with Penicillin and a New Sulfonamide, Gantrisan.
Paul S. Rhoads and Warren R. Schram, Chicago.
Discussion to be opened by Harry F. Dowling, Washington, D. C.

Diagnostic Problems of Prolonged Fever.
Hobart A. Reimann, Philadelphia.
Discussion to be opened by Wesley W. Spink, Minneapolis, and Harold Jeghers, Washington, D. C.

Thursday, June 9—9 a. m.

ELECTION OF OFFICERS

Critique of Reports of the Surgical and Dietary Therapy in Hypertension. David Ayman, Boston.
Discussion to be opened by Frederick M. Allen, New York, and Keith S. Grimson, Durham, N. C.

Hazards in the Use of Low Salt Diets.
Henry A. Schroeder, St. Louis.
Discussion to be opened by J. Edwin Wood Jr., Charlottesville, Va.

Chairman's Address: Deficiency Diseases in a General Hospital; a Ten-Year Study.
M. A. Blankenhorn, Cincinnati.

The Prepsychotic and Early Psychotic Sees the Family Doctor or Internist First.
G. Gill Richards and Louis G. Moench, Salt Lake City.
Discussion to be opened by Milton Rosenbaum, Cincinnati.

Other Factors Beside Allergy in Asthma.
Francis M. Rackemann, Boston.
Discussion to be opened by Simon S. Leopold, Philadelphia.

The Use of Radioactive Isotopes in Clinical Medicine.
John Z. Bowers, Washington, D. C.
Discussion to be opened by Paul C. Aebersold, Oak Ridge, Tenn.

Friday, June 10—9 a. m.

JOINT MEETING WITH SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

The General Management of Rheumatoid Arthritis.
Charles A. Ragan, New York.
Discussion to be opened by Hans Waine, Winchester, Mass.

The Present Status of Gold Therapy in Rheumatoid Arthritis.
Richard H. Freyberg, New York.
Discussion to be opened by Edward F. Rosenberg, Chicago.

Prevention and Treatment of Deformities in Rheumatoid Arthritis.
Donald F. Hill and W. Paul Holbrook, Tucson, Ariz.
Discussion to be opened by Robert L. Preston, New York.

NPH-50 (Modified Protamine) Insulin in the Treatment of Severe Diabetes.
Priscilla White, Boston.
Discussion to be opened by Cyril M. MacBryde, St. Louis, and Henry T. Ricketts, Chicago.

Treatment of Myasthenia Gravis.
Charles T. Stone and J. Alfred Rider, Galveston, Texas.
Discussion to be opened by A. McGehee Harvey, Baltimore.

Favorable Results in Bulbar Poliomyelitis Treated as a Problem in Respiratory Obstruction.
Thomas C. Galloway, Evanston, Ill., and Martin H. Seifert, Wilmette, Ill.
Discussion to be opened by Albert G. Bower, Pasadena, Calif.

SECTION ON SURGERY, GENERAL AND ABDOMINAL

MEETS IN WESTMINSTER HALL, CHELSEA HOTEL

OFFICERS OF SECTION

Chairman—William F. MacFee, New York.
Vice Chairman—Emile Holman, San Francisco.
Secretary—Michael E. DeBakey, Houston, Texas.
Executive Committee—Alton Ochsner, New Orleans; B. Noland Carter, Cincinnati; William F. MacFee, New York.

Wednesday, June 8—2 p. m.

Acute Massive Hemorrhage from the Upper Gastro-Intestinal Tract.
Claude E. Welch, Boston.
Discussion to be opened by John Stewart, Buffalo, and Jonathan E. Rhoads, Philadelphia.

Results of Classical Operations for Duodenal Ulcer and Benign Ulcerating Lesions of the Stomach.
Howard K. Gray, Rochester, Minn.
Discussion to be opened by I. Ridgeway Trimble, Baltimore, and Harold D. Harvey, New York.

Changing Concepts in the Use of Colostomy.
D. Henry Poer, Atlanta, Ga.
Discussion to be opened by Claude E. Welch, Boston, and Fred W. Rankin, Lexington, Ky.

Acute Pancreatitis.
Vinton E. Siler, Cincinnati.
Discussion to be opened by I. Mims Gage, New Orleans, and Robert Elman, St. Louis.

Sterilization of the Intestinal Tract by Antibiotics and Supplemental Agents.
Major Edwin J. Pulaski, Medical Corps, U. S. A.; Lieut. James F. Connell, Medical Corps, U. S. A., and Col. Sam Seeley, Medical Corps, U. S. A.
Discussion to be opened by John S. Lockwood, New York, and Edgar J. Poth, Galveston, Texas.

Some Common Fallacies and Confusions with Regard to Inguinal Hernia Repair.
Amos R. Koontz, Baltimore.
Discussion to be opened by Carrington Williams, Richmond, Va., and Bradley L. Coley, New York.

Thursday, June 9—2 p. m.

ELECTION OF OFFICERS

Chairman's Address: Painless Jaundice.
William F. MacFee, New York.

Craniocerebral Trauma.
R. Glen Spurling and Ludwig H. Segerberg, Louisville, Ky.
Discussion to be opened by Barnes Woodhall, Durham, N. C., and Winchell McK. Craig, Rochester, Minn.

The Present Status of Anticoagulant Therapy in Surgery.
Geza de Takats, Chicago.
Discussion to be opened by Dan C. Elkin, Atlanta, Ga., and Walter F. Kvale, Rochester, Minn.

Acute Changes in Renal Function Associated with Major Surgical Procedures.
Carl A. Moyer, Dallas, Texas.
Discussion to be opened by Charles H. Burnett, Boston, and Ernest E. Muirhead, Dallas, Texas.

Adaptation of Supportive Therapy to the Needs of the Surgical Patient.
Francis D. Moore, Boston.
Discussion to be opened by Everett I. Evans, Richmond, Va., and Carl A. Moyer, Dallas, Texas.

Friday, June 10—9 a. m.

JOINT MEETING WITH SECTION ON ANESTHESIOLOGY IN AMERICAN ROOM, HOTEL TRAYMORE

Preliminary Report of the Committee on Operative Mortality.
Frederick P. Haugen, Portland, Ore.
Discussion to be opened by H. K. Beecher, Boston, and Ambrose H. Storck, New Orleans.

Management of Pain.
F. A. D. Alexander, McKinney, Texas, and T. McD. Anderson, Dallas, Texas.
Discussion to be opened by Henry S. Ruth, Haverford, Pa., and James C. White, Boston.

Cyclopropane Anesthesia.
L. H. Mousel, Washington, D. C.
Discussion to be opened by R. D. Dripps, Philadelphia, and Frank B. Berry, New York.

Cardiac Arrest During Anesthesia and Surgery.
Claude S. Beck and H. J. Rand, Cleveland.
Discussion to be opened by T. J. Dry, Rochester, Minn., and Frank H. Lahey, Boston.

Anesthesia in Thoracic Surgery.
John C. Jones, Los Angeles.
Discussion to be opened by Charles F. McCuskey, Los Angeles, and Victor Richards, San Francisco.

Anesthesia in Infants and Young Children for Major Surgical Procedures.
C. R. Stephen, Montreal, Canada.
Discussion to be opened by Curtiss B. Hickcox, Hartford, Conn., and Edward J. Donovan, New York.

SECTION ON OBSTETRICS AND GYNECOLOGY

MEETS IN WESTMINSTER HALL, CHELSEA HOTEL

OFFICERS OF SECTION

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Vice Chairman—Herbert E. Schmitz, Chicago.
Secretary—Arthur B. Hunt, Rochester, Minn.
Executive Committee—Alice F. Maxwell, San Francisco; William F. Mengert, Dallas, Texas; Leroy A. Calkins, Kansas City, Kans.

Wednesday, June 8—9 a. m.

Rheumatic Heart Disease in Pregnancy.
Joseph J. Bunim, New York.
Discussion to be opened by Julius Jensen, St. Louis; Burton E. Hamilton, Boston, and Nicholson J. Eastman, Baltimore.

Evaluation of Present Day Trends Pertaining to Personality and Psychologic Aspects of Pregnancy.
Duncan E. Reid, Boston.
Discussion to be opened by Sprague H. Gardiner, Indianapolis, and Gordon R. Kamman, St. Paul.

The Conservative Treatment of Premature Separation of the Normally Implanted Placenta.
John R. McCain and Samuel R. Poliakoff, Atlanta, Ga.
Discussion to be opened by M. Peirce Rucker, Richmond, Va.; C. O. McCormick, Indianapolis, and Edward G. Waters, Jersey City, N. J.

The Reproductive Careers of Women Who Have Menstrual Dysfunctions.
Lois A. Day and Philip L. Smith, Rochester, Minn.
Discussion to be opened by Jean Paul Pratt, Detroit, and S. Leon Israel, Philadelphia.

Newer Methods in the Management of Infertility.
G. E. Seegar Jones, Baltimore.
Discussion to be opened by J. P. Greenhill, Chicago, and John Rock, Brookline, Mass.

Steroid Therapy in Early Pregnancy Complications.
M. Edward Davis, Chicago.
Discussion to be opened by Olive W. Smith, Brookline, Mass.; A. E. Rakoff, Philadelphia, and A. R. Abarbanel, Los Angeles.

Thursday, June 9—9 a. m.

ELECTION OF OFFICERS

Chairman's Address: Reproduction in the Older Woman.
Leroy A. Calkins, Kansas City, Kans.

A New Simplified Classification of the Pelvis.
H. Robert Berman, Newark, N. J.
Discussion to be opened by A. Louis Dippel, Houston, Texas, and Paul C. Swenson, Philadelphia.

Pregnancy Complicated by Anterior Poliomyelitis.
Paula Marie Horn, Los Angeles.
Discussion to be opened by Leon S. McGoogan, Omaha.

The Pomeroy Operation for Sterilization.
Clifford B. Lull and Robert M. Mitchell, Philadelphia.
Discussion to be opened by William F. Nelms, Brooklyn, and G. Wilson Hunter, Fargo, N. D.

The Effect of Obstetric Difficulties and Maternal Diseases on Premature Mortality. E. Stewart Taylor and James R. Phalen, Denver.

The Protection of Premature Infants Provided by the Various Methods of Conduction Anesthesia.
William H. Masters and Robert W. Ross, St. Louis.
Discussion on papers of Drs. Taylor and Phalen and Drs. Masters and Ross to be opened by Franklin F. Snyder, Cambridge, Mass.; James K. Quigley, Rochester, N. Y.; Robert A. Hingson, Baltimore, and Charles A. Weymuller, Brooklyn.

Friday, June 10—9 a. m.

A Study of Prophylactic Penicillin Administration to Obstetric Patients.
William C. Keettel and Everett D. Plass, Iowa City.
Discussion to be opened by E. Stewart Taylor, Denver; Wesley W. Spink, Minneapolis, and Louis H. Douglass, Baltimore.

SYMPOSIUM ON CARCINOMA OF THE CERVIX

Herbert E. Schmitz, Chicago, Moderator

The Normal Cervix Uteri and Its Clinical Significance.
Roy W. Mohler and George A. Hahn, Philadelphia.
Discussion to be opened by Wesley T. Pommerenke, Rochester, N. Y.

Evaluation of Comparative Exfoliative Cytology for the Detection of Cancer of the Cervix Uteri.
H. E. Nieburgs and Edgar R. Pund, Augusta, Ga.

The Activity of the Enzyme Beta-Glucoronidase in Female Genital Cancer.
Lester D. Odell and James C. Burt, Chicago.

The Present Status of Radium Therapy in the Treatment of Carcinoma of the Cervix.
Eleanor S. Percival and A. D. Campbell, Montreal, Canada.
Discussion to be opened by Howard C. Taylor Jr., New York, and Hebert E. Schmitz, Chicago.

Carcinoma of the Cervix Complicating Pregnancy.
John C. Hirst, Philadelphia.
Discussion to be opened by C. Frederic Fluhmann, San Francisco.
Panel Discussion (Questions and Answers by the Essayists of the Symposium).

SECTION ON OPHTHALMOLOGY

MEETS IN RENAISSANCE ROOM, AMBASSADOR HOTEL

OFFICERS OF SECTION

Chairman—M. Hayward Post, St. Louis.
Vice Chairman—Brittain F. Payne, New York.
Secretary—Trygve Gundersen, Boston.
Executive Committee—Derrick Vail, Chicago; Everett L. Goar, Houston, Texas; M. Hayward Post, St. Louis.

Wednesday, June 8—2 p. m.

Chairman's Address. M. Hayward Post, St. Louis.

SYMPOSIUM ON OCULAR INJURIES

W. Morton Grant, Boston.
David G. Cogan, Boston.
Brittain F. Payne, New York.
Don Marshall, Kalamazoo, Mich.
Alston Callahan, Birmingham, Ala.
Derrick Vail, Chicago.

Thursday, June 9—2 p. m.

EXECUTIVE SESSION

ELECTION OF OFFICERS

A Clinical Study of 200 Cases of Retrolental Fibroplasia.
Merrill J. King, Boston.

The Retrolental Fibroplasia Syndrome: A Study of Its Pathology. Parker Heath, Boston.

Prophylaxis of Ophthalmia Neonatorum.
James H. Allen, Iowa City.

The Incidence of Atopic Cataract.
Alfred Cowan and Joseph V. Klauder, Philadelphia.

DEMONSTRATION OF NEW INSTRUMENTS

Friday, June 10—2 p. m.

Treatment of Glaucoma by Freezing the Ciliary Body.
Gambiattista Bietti, Pavia, Italy.

Flicker Fusion Fields in Early Glaucoma.
Paul W. Miles, St. Louis.

General Anesthesia for Cataract Surgery.
R. Douglas Sanders and Norman L. Cutler, Wilmington, Del.

Norms of Refraction and Vision from Birth to Old Age.
Felician J. Slataper, Houston, Texas.

The Syndrome of Aneurysm of the Intracranial Carotid: Frontal Headache with Oculomotor Nerve Paralysis.
J. Rudolph Jaeger, Philadelphia.

The Use of Curare in Intraocular Surgery: The Value of Curare for General Akinesia in Intraocular Surgery.
Daniel B. Kirby, New York.

SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

MEETS IN RENAISSANCE ROOM, AMBASSADOR HOTEL

OFFICERS OF SECTION

Chairman—Henry B. Orton, Newark, N. J.
Vice Chairman—Daniel S. Cunning, New York.
Secretary—J. Milton Robb, Detroit.
Executive Committee—J. Mackenzie Brown, Los Angeles; Fletcher D. Woodward, Charlottesville, Va.; Henry B. Orton, Newark, N. J.

Wednesday, June 8—9 a. m.

Diagnosis and Treatment of Laryngeal Tumors.
Daniel S. Cunning, New York.
Discussion to be opened by Morley I. Smith, Rochelle, N. Y., and Edward J. Whalen, Hartford, Conn.

Interpretation of Hearing Tests.
Stacy R. Guild, Baltimore.
Discussion to be opened by Thomas Sage, Detroit, and James B. Costen, St. Louis.

Reconstruction of the Auricle with Diced Cartilage Grafts in an Ear Mold.
Lyndon A. Peer, Newark, N. J.
Discussion to be opened by Clarence Straatsma, New York, and Frederick A. Figi, Rochester, Minn.

Paranasal Sinuses in Relation to Skull Injury, Subsequent Defects and Their Correction with Tantalum Plates.
Walter P. Work, San Francisco.
Discussion to be opened by I. Jerome Hauser, Detroit, and Edgar M. Holmes, Boston.

Evaluation of the "Dizzy" Patient.
David D. DeWeese, Portland, Ore.
Discussion to be opened by Frank D. Lathrop, Boston, and James W. McLaurin, Baton Rouge, La.

Thursday, June 9—9 a. m.

EXECUTIVE SESSION

ELECTION OF OFFICERS

Chairman's Address: The Future Laryngologist.
Henry B. Orton, Newark, N. J.

The Ethmo-Spheno-Frontal Operation.
W. Likely Simpson, Memphis, Tenn.
Discussion to be opened by Francis E. LeJeune, New Orleans, and Simon Jesberg, Los Angeles.

Direct Laryngoscopy: Simplified Technique.
Sam E. Roberts and Frank S. Forman, Kansas City, Mo.

Diagnosis and Treatment of Tumors of the Neck.
D. F. Weaver, Detroit.
Discussion to be opened by Louis H. Clerf, Philadelphia, and Ralph J. McQuiston, Indianapolis.

SECTION ON PEDIATRICS

MEETS IN BALLROOM, CONVENTION HALL

OFFICERS OF SECTION

Chairman—Woodruff L. Crawford, Rockford, Ill.
Vice Chairman—W. Ambrose McGee, Richmond, Va.
Secretary—Margaret Mary Nicholson, Washington, D. C.
Executive Committee—Gilbert J. Levy, Memphis, Tenn.; Oscar Reiss,* Los Angeles; Woodruff L. Crawford, Rockford, Ill.

Wednesday, June 8—2 p. m.

Treatment of Acute Rheumatic Fever and Prevention of Recurrences.
Robert L. Jackson, Iowa City.
Discussion to be opened by William Weston Jr., Columbia, S. C.; John P. Hubbard, Philadelphia, and May G. Wilson, New York.

The Treatment of Infection with New Antibiotics.
Perrin H. Long, Emanuel B. Schoenbach, Morton S. Bryer, Caroline A. Chandler and Eleanor A. Bliss, Baltimore.
Discussion to be opened by Vernon Knight, New York, and Robert B. Lawson, Winston-Salem, N. C.

"3-Day Fever": An Endemic Febrile Disease of Childhood, with Virus Studies.
Clarence H. Webb, Shreveport, La.; S. George Wolfe, New York, and Beatrice F. Howitt, Montgomery, Ala.
Discussion to be opened by Joseph E. Smadel, Washington, D. C.; Thomas F. McNair Scott, Philadelphia, and Kari Penttinen, Helsinki, Finland.

Acute Conjunctivitis Caused by Hemophilus
Dorland J. Davis and Margaret Pittman, Bethesda, Md.
Discussion to be opened by James C. Overall, Nashville, Tenn; Samiye Argut, Ankara, Turkey; Thomas D. Allen, Chicago, and Alson E. Braley, New York.

Congenital Obstruction of the Alimentary Tract.
John P. Caffey, New York.
Discussion to be opened by Orvar Swenson, Boston; Mercer Blanchard, Columbus, Ga., and McLenmore Birdsong, Charlottesville, Va.

Congenital Dislocation of the Hip Joint: Early Recognition and Prevention.
Vernon L. Hart, Minneapolis.
Discussion to be opened by Russell C. Bond, Wheeling, W. Va.; Mayer S. DeRoy, Pittsburgh; Esperanza Oteo de Hoogh, México D. F., Mexico, and Willis H. Thompson, Minneapolis.

Thursday, June 9—2 p. m.

ELECTION OF OFFICERS

SYMPOSIUM ON CONGENITAL HEART DISEASE

Congenital Heart Disease from the Pediatric View.
Stanley Gibson, Chicago.

Common Cardiac Defects Which Can Be Treated by Surgery: Discussed from Standpoint of Functional Pathology.
Jesse E. Edwards, Rochester, Minn.

The Clinical Syndromes of the Tetralogy of Fallot.
Helen B. Taussig, Baltimore.

Problems Encountered in Surgical Treatment of Patients with Coarctation of the Aorta.
Alfred Blalock, Baltimore.
Discussion to be opened by John C. Jones, Los Angeles.

Angiocardiographic Examples.
John D. Keith, Toronto, Canada.

Friday, June 10—2 p. m.

Medical Implications and Applications of Radioisotopes.
George M. Lyon, Alexandria, Va.
Discussion to be opened by Malcolm W. Mason and Fred R. Lang, Bethesda, Md.

* Deceased.

Factors Responsible for Laryngeal Obstruction in Infants. Paul H. Holinger, Chicago.
Discussion to be opened by Louis H. Clerf and Waldo E. Nelson, Philadelphia, and E. Clarence Rice, Washington, D. C.

Asphyxia of the Newborn. Wyman C. C. Cole, Detroit.
Discussion to be opened by Stewart H. Clifford, Brookline, Mass.; William F. O'Donnell, Washington, D. C., and James B. Stone, Richmond, Va.

Evils of Thumb Sucking. Charles Hendee Smith, New York.
Discussion to be opened by Julio Periera, La Paz, Bolivia; Henry H. Work Jr., Arlington, Va., and Argimiro Brachamonte, Berquisimeto, Venezuela.

Breast Feeding Comes of Age. Frank Howard Richardson, Asheville, N. C.
Discussion to be opened by Alicia Gallaga Romero, México, D. F., Mexico, and M. Hines Roberts, Atlanta, Ga.

Chemotherapy of Childhood Cancer Including Leukemia. Sidney Farber, Boston.
Discussion to be opened by Murray Schear, Bethesda, Md.; Lewis Katz Alpert, Washington, D. C.; Roswell D. Johnson, New Orleans; S. D. Mills, Rochester, Minn., and Oscar Brentwood Hunter Jr., Washington, D. C.

SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

MEETS IN WEDGEWOOD ROOM OF CHELSEA HOTEL

OFFICERS OF SECTION

Chairman—Dwight L. Wilbur, San Francisco.
Vice Chairman—McKeen Cattell, New York.
Secretary—Carl V. Moore, St. Louis.
Executive Committee—Carl A. Dragstedt, Chicago; Walter Bauer, Boston; Dwight L. Wilbur, San Francisco.

Wednesday, June 8—2 p. m.

SYMPOSIUM ON CHEMOTHERAPY AND INFECTIOUS DISEASE

Dosage Forms of Penicillin. Chester S. Keefer, Boston.

The Relation of Streptomycin Dosage to Toxicity and to Emergence of Resistant Organisms. Walsh McDermott, New York.

Aureomycin. Wesley W. Spink, Minneapolis.
Discussion to be opened by Perrin H. Long, Baltimore.

Clinical Use of the New Antibiotic Chloromycetin. Joseph E. Smadel, Washington, D. C.

The Status of Research on the Common Cold. Norman H. Topping, Bethesda, Md.

Serum Prophylaxis After Exposure to Rabies. Hilary Koprowski, Pearl River, N. Y.

Thursday, June 9—2 p. m.

ELECTION OF OFFICERS

Chairman's Address: The Clinical Management of the Patient with Fatigue and Nervousness. Dwight L. Wilbur, San Francisco.

The Treatment of Addisonian Pernicious Anemia with Vitamin B_{12}. Randolph West, New York.
Discussion to be opened by William J. Darby, Nashville, Tenn., and Byron E. Hall, Rochester, Minn.

Chemotherapy of Malignant Neoplastic Disease. Edward H. Reinhard and James T. Good, St. Louis, and Edward Martin, New Britain, Conn.
Discussion to be opened by J. M. Stickney, Rochester, Minn.

Some Observations on Digitoxin and Other Glycosides of the Digitalis Series. Harry Gold, New York.
Discussion to be opened by Harold E. B. Pardee, New York.

Clinical and Experimental Use of Lithium Salts as a Seasoning Substitute for Lithium Chloride. John H. Talbott, Buffalo.
Discussion to be opened by Henry A. Schroeder, St. Louis.

Modern Treatment of Diabetes with Special Reference to the Use of New Modified Protamine Insulin. Cyril M. MacBryde, St. Louis.

Friday, June 10—9 a. m.

JOINT MEETING WITH SECTION ON INTERNAL MEDICINE IN BALLROOM, CONVENTION HALL

The General Management of Rheumatoid Arthritis. Charles A. Ragan, New York.
Discussion to be opened by Hans Waine, Winchester, Mass.

The Present Status of Gold Therapy in Rheumatoid Arthritis. Richard H. Freyberg, New York.
Discussion to be opened by Edward F. Rosenberg, Chicago.

Prevention and Treatment of Deformities in Rheumatoid Arthritis. Donald F. Hill and W. Paul Holbrook, Tucson, Ariz.
Discussion to be opened by Robert L. Preston, New York.

NPH-50 (Modified Protamine) Insulin in the Treatment of Severe Diabetes. Priscilla White, Boston.
Discussion to be opened by Cyril W. MacBryde, St. Louis, and Henry T. Ricketts, Chicago.

Treatment of Myasthenia Gravis. Charles T. Stone and J. Alfred Rider, Galveston, Texas.
Discussion to be opened by A. McGehee Harvey, Baltimore.

Favorable Results in Bulbar Poliomyelitis Treated as a Problem in Respiratory Obstruction. Thomas C. Galloway, Evanston, Ill., and Martin H. Seifert, Wilmette, Ill.
Discussion to be opened by Albert G. Bower, Pasadena, Calif.

SECTION ON PATHOLOGY AND PHYSIOLOGY

MEETS IN WEDGEWOOD ROOM OF CHELSEA HOTEL

OFFICERS OF SECTION

Chairman—George E. Wakerlin, Chicago.
Vice Chairman—Frank W. Konzelmann, Atlantic City, N. J.
Secretary—Edwin F. Hirsch, Chicago.
Executive Committee—J. J. Moore, Chicago; Alvin G. Foord, Pasadena, Calif.; George E. Wakerlin, Chicago.

Wednesday, June 8—9 a. m.

The Pathologic Physiology of the Spleen. Charles A. Doan, Columbus, Ohio.

The Psysiopathology and Course of Polycythemia Vera. William Dameshek, Boston.

Recent Advances in the Physiology of Respiration with Particular Reference to Oxygen Therapy. Julius H. Comroe Jr., Philadelphia.

Clinical and Physiologic Concepts of the Psychoneuroses. I. Arthur Mirsky, Cincinnati.

Thursday, June 9—9 a. m.

ELECTION OF OFFICERS

Chairman's Address. George E. Wakerlin, Chicago.

Demonstration of Expulsion Factor for Leukocytes. Bernard Steinberg, Toledo, Ohio.

The Pathology and Physiology of Acute Coronary Insufficiency.
Henry Horn and Leonard E. Field, New York.

The Histopathologic Diagnosis of Rhinosceroma.
H. Russell Fisher, Los Angeles.

Cardiac Lesions in Rheumatoid Arthritis.
Irving Graef, New York.

Friday, June 10—9 a. m.

JOINT MEETING WITH SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

Acute and Chronic Pancreatitis. A. C. Ivy, Chicago.
Discussion to be opened by Sara M. Jordan and Sidney Farber, Boston.

Chronic Ulcerative Colitis: Proctoscopic Appearance.
J. Peerman Nesselrod, Evanston, Ill., and Jay M. Garner, Winnetka, Ill.
Discussion to opened by J. A. Bargen, Rochester, Minn., and Sidney A. Portas, Chicago

Early Detection of Carcinoma of the Stomach.
David State, Minneapolis.
Discussion to be opened by Russell H. Morgan, Baltimore, and Alexander Brunschweig, New York.

The Value of Gastric Biopsy as Obtained Through the Flexible Operating Gastroscope.
Edward B. Benedict, Boston.
Discussion to be opened by H. J. Moersch, Rochester, Minn., and Cecil O. Patterson, Dallas, Texas.

Diagnostic Problems in Jaundice.
Franklin M. Hanger, New York.
Discussion to be opened by Richard B. Capps, Chicago, and John R. Neefe, Philadelphia.

SECTION ON NERVOUS AND MENTAL DISEASES

MEETS IN TRELLIS ROOM, RITZ-CARLTON HOTEL

OFFICERS OF SECTION

Chairman—Francis J. Gerty, Chicago.
Vice Chairman—Luman Daniels, Denver.
Secretary—Francis M. Forster, Philadelphia.
Executive Committee—Roland P. Mackay, Chicago; A. R. Vonderahe, Cincinnati; Francis J. Gerty, Chicago.

Wednesday, June 8—2 p. m.

Spontaneous Nontraumatic Subdural Hematomas.
Michael Scott, Philadelphia.
Discussion to be opened by J. Rudolph Jaeger, Philadelphia, and Tracy J. Putnam, Beverly Hills, Calif.

The Place of Neurologic Surgery in the Treatment of Epilepsy. A. Earl Walker, Baltimore.
Discussion to be opened by Percival Bailey, Chicago, and John E. Scarff, New York.

A Clinical Method for Measurement of Internal Carotid Pressure: Significance of Changes During Carotid Occlusion.
William H. Sweet and Stanley J. Sarnoff, Boston.
Discussion to be opened by Henry A. Shenkin, Philadelphia, and Sidney W. Gross, New York.

Arnold-Chiari Malformation in Adults.
W. James Gardner, Cleveland.
Discussion to be opened by Ben W. Lichtenstein, Chicago, and Jerome F. Grunnagle, Pittsburgh.

The Effect of Head Posture on C. S. F. Manometrics in Cervical Lesions: A New Diagnostic Test.
Lawrence I. Kaplan and Foster Kennedy, New York.
Discussion to be opened by Luman E. Daniels, Denver, and Francis C. Grant, Philadelphia.

Localizing Cerebellar Syndromes.
Joe R. Brown, Minneapolis.
Discussion to be opened by Gervase J. Connor, New Haven, Conn., and Benjamin H. Balser, New York.

Thursday, June 9—2 p. m.

ELECTION OF OFFICERS

Chairman's Address: Psychiatry; Its Scope and Relationship in Medicine. Francis J. Gerty, Chicago.

Treatment of Neurosyphilis with Penicillin.
Douglas Goldman, Cincinnati.
Discussion to be opened by George D. Gammon and John H. Stokes, Philadelphia.

Evaluation of Artane in the Treatment of Parkinsonism.
K. B. Corbin, Rochester, Minn.
Discussion to be opened by Peter G. Denker, New York, and Roland P. Mackay, Chicago.

The Psychiatric Manifestations of Certain Convulsive States. Richard L. Masland, Winston-Salem, N. C.
Discussion to be opened by Herbert Jasper, Montreal, Canada, and Calvin S. Drayer, Philadelphia.

Mesantoin and Combined Therapy in Epilepsy: A Three Year Study. Joseph L. Fetterman, Cleveland.
Discussion to be opened by H. Houston Merritt, New York, and Bernard J. Alpers, Philadelphia.

Retraining Therapy in Neurologic Diseases.
Andrew J. Leemhuis, Minneapolis.
Discussion to be opened by Pearce Bailey, Washington, D. C., and Hans H. Reese, Madison, Wis.

Friday, June 10—2 p. m.

The Outlook of Patients Over 65 Years of Age Hospitalized for the First Time in a State Institution for the Mentally Ill.
Herbert A. Perry, Medical Lake, Wash.
Discussion to be opened by Robert S. Bookhammer, Philadelphia, and Mesrop A. Tarumianz, Farnhurst, Del.

Clinical Aspects of Hysteria: A Study of 100 Cases and 100 Control Subjects.
James Purtell, Milwaukee, and Eli Robbins, Boston.
Discussion to be opened by Charles Rupp, Philadelphia, and Frederick C. Redlich, New Haven, Conn.

Ictal and Nonictal Psychiatric Disorder in Temporal Lobe Epilepsy. Frederick A. Gibbs, Chicago.
Discussion to be opened by Percival Bailey, Chicago, and Richard L. Masland, Winston-Salem, N. C.

Theoretical Aspects of Prefrontal Lobotomy and Similar Operations. Paul H. Hoch, New York.
Discussion to be opened by A. R. Vonderahe, Cincinnati, and Walter Freeman, Washington, D. C.

Practical Considerations in the Treatment of Mentally Ill.
Irving J. Sands, New York.
Discussion to be opened by George N. Raines, Bethesda, Md., and Joseph C. Yaskin, Philadelphia.

Intravenous Pentathol in the Treatment of Alcoholism.
Frederick Lemere and Paul O'Hollaren, Seattle.
Discussion to be opened by Robert V. Seliger, Baltimore, and Howard P. Rome, Rochester, Minn.

SECTION ON DERMATOLOGY AND SYPHILOLOGY

MEETS IN WEDGEWOOD ROOM OF MARLBOROUGH BLENHEIM HOTEL

OFFICERS OF SECTION

Chairman—Anthony C. Cipollaro, New York.
Vice Chairman—Michael H. Ebert, Chicago.
Secretary—Clinton W. Lane, St. Louis.
Executive Committee—Nelson Paul Anderson, Los Angeles; Henry E. Michelson, Minneapolis; Anthony C. Cipollaro, New York.

Wednesday, June 8—2 p. m.

Chairman's Address: Dermatology and Syphilology in a Modern Medical Program.
Anthony C. Cipollaro, New York.

Protein Deficiency in Subcutaneous Disease.
W. H. Guy, F. M. Jacob and W. B. Guy, Pittsburgh.
Discussion to be opened by F. J. Eichenlaub, Washington, D. C.

Malingering, Industrial Aspects. J. G. Downing, Boston.
Discussion to be opened by J. W. Jordon, Buffalo.

The Dermatologic Aspects of Insect Repellents and Intoxicants. Leon Goldman, Cincinnati.
Discussion to be opened by Theodore Cornbleet, Chicago.

A Comparative Analysis of the Muco-Cutaneous and Ocular Syndromes. H. M. Robinson Jr., Baltimore.
Discussion to be opened by Helen O. Curth, New York.

Dermatoses of the Colored Race.
V. M. Henington, Frederick Grieshaber and J. K. Howles, New Orleans.
Discussion to be opened by T. W. Murrell Jr., Richmond, Va.

Thursday, June 9—2 p. m.

ELECTION OF OFFICERS

The Distinguished Lecture in Dermatology: The Development of Standards in Dermatology.
C. Guy Lane, Boston.

Rickettsialpox. L. P. Barker, New York.
Discussion to be opened by Nelson Paul Anderson, Los Angeles.

Quantitative Measurements of Activity of Various Antihistamine Drugs Using Histamine Iontophoresis in Human Subjects.
T. H. Sternberg, D. J. Perry and Paul LeVan, Los Angeles.
Discussion to be opened by D. M. Pillsbury, Philadelphia.

Antihistamine Therapy in Dermatology.
G. M. Lewis, New York.
Discussion to be opened by D. M. Ruch, Milwaukee.

The Benign Pigmented Epithelial Nevus.
E. F. Traub, New York.
Discussion to be opened by W. M. Sams, Miami, Fla.

Spindle Cell Epidermoid Carcinoma.
M. J. Strauss, New Haven.
Discussion to be opened by M. D. Marcus, St. Louis.

Misplaced Mongolian Spot.
H. N. Cole Jr., Cleveland, and W. R. Hubler, Corpus Christi, Texas.
Discussion to be opened by S. R. Mercer, Fort Wayne, Ind.

SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

MEETS IN TRELLIS ROOM, RITZ-CARLTON HOTEL

OFFICERS OF SECTION

Chairman—Oscar A. Sander, Milwaukee.
Vice Chairman—C. N. Neupert, Madison, Wis.
Secretary—Rutherford T. Johnstone, Los Angeles.
Executive Committee—Claence O. Sappington, Chicago; Robert H. Riley, Baltimore; Oscar A. Sander, Milwaukee.

Wednesday, June 8—9 a. m.

SYMPOSIUM ON AIR POLLUTION (SMOG)

Prefacing Remarks: Of universal concern to the populace as well as to industry is the effect of smog on community health and property. Much has been written in lay journals which is erroneous but which has led to unfounded fear and agitation. While it is true that engineers and administrative officers have discussed the problem among themselves, too little of the known facts have been presented before city health officers, industrial physicians, and the general practitioners who must answer questions daily asked them regarding the noxiousness or innocuousness of air pollution. The purpose of this symposium is to bring to focus the latest factual data, to eradicate erroneous opinion and to offer a guide to future planning.

R. T. Johnstone, Secretary.

The Aspects of Smog: (a) Chemical; (b) Topographic; (c) Meteorologic. H. F. Johnstone, Urbana, Ill.

Recent Advances in the Identification of Air Pollutants.
J. A. Haagen-Smit, Pasadena, Calif.

Causes, Constituents and Physical Effects of Smog Involved in Specific, Dramatic Episodes (Donora; Meuse River Valley).
H. H. Schrenk, Bethesda, Md.

Approved Control Measures.
W. C. L. Hemeon, Pittsburgh.

Administration of an Air Pollution Control Program.
L. C. McCabe, Los Angeles.

Summary and Discussion of Papers, with Particular Relationship to Community Health.
Robert A. Kehoe, Cincinnati.

Thursday, June 9—9 a. m.

ELECTION OF OFFICERS

Chairman's Address: The General Aspects of Pneumoconiosis. Oscar A. Sander, Milwaukee.

The Piezoelectric Theory of Silicosis.
Silas M. Evans, Milwaukee.

Anthracosilicosis: Clinical and Pathologic Aspects.
H. A. Slesinger, Windber, Pa.

Pulmonary Functional Impairment in Anthracosilicosis.
Hurley Motley, Burgess Gordon, Leonard P. Lang and Peter A. Theodos, Philadelphia.

Disability Evaluation in Occupational Pulmonary Disease.
George A. Wright, Saranac, N. Y.
Discussion of papers of Drs. Motley, Gordon, Lang and Theodos and Dr. Wright to be opened by William S. McCann, Rochester, N. Y.

Friday, June 10—9 a. m.

Why School Health Service?
George M. Wheatley, New York.

Federal Health Services: Recommendations of the Hoover Commission. Hugh R. Leavell, Boston.

The Family Doctor: An Epidemiologic Concept.
Thomas Francis Jr., Ann Arbor, Mich.

Address. Leonard A. Scheele, Washington, D. C.

The Exact Diagnosis of Pulmonary Tuberculosis.
Herman E. Hilleboe, Albany, N. Y.

SECTION ON UROLOGY

MEETS IN WEDGEWOOD ROOM OF MARLBOROUGH-BLENHEIM HOTEL

OFFICERS OF SECTION

Chairman—Hamilton W. McKay, Charlotte, N. C.
Vice Chairman—Norris J. Heckel, Chicago.
Secretary—Edward N. Cook, Rochester, Minn.
Executive Committee—Grayson Carroll, St. Louis; Reed M. Nesbit, Ann Arbor, Mich.; Hamilton W. McKay, Charlotte, N. C.

Wednesday, June 8—9 a. m.

Leukoplakia of the Renal Pelvis.
Lowrain E. McCrea, Philadelphia.

Papillary Necrosis of the Kidney: A Clinical and Experimental Correlation. E. E. Muirhead, Dallas, Texas

Observations of the Electrolyte Pattern of the Blood Following Bilateral Uretero-Intestinal Anastomosis. D. O. Ferris and H. M. Odel, Rochester, Minn.
Discussion on papers of Dr. McCrea, Dr. Muirhead and Drs. Ferris and Odel to be opened by Hugh J. Jewett, Baltimore, and Victor F. Marshall, New York.

Urinary Tract Calculi in Recumbent Patients.
James C. Kimbrough and Joseph C. Denslow, Washington, D. C.

Radioactive Urine and Urinary Tract Calculi.
David S. Cristol, Philadelphia.
Discussion on papers of Drs. Kimbrough and Denslow and Dr. Cristol to be opened by Rubin Flocks, Iowa City, and John F. McCuskey, Clarksburg, W. Va.

Gantrosan (NU-445): An in Vitro and in Vivo Study in Urinary Infections. Grayson Carroll, St. Louis.

The Effect of Streptomycin on the Ureter.
J. Robert Rinker, Augusta, Ga.
Discussion on papers of Drs. Carroll and Rinker to be opened by Albert M. Crance, Geneva, N. Y., and William M. Coppridge, Durham, N. C.

Thursday, June 9—9 a. m.

ELECTION OF OFFICERS.

Excretory Urography Versus Retrograde Urography: Their Respective Advantages and Indications, with Illustrated Cases.
J. Byron Beare and Carl A. Wattenberg, St. Louis.

Significant Scrotal Swellings.
R. Theodore Bergman, Los Angeles.
Discussion on papers of Drs. Beare and Wattenberg and Dr. Bergman to be opened by William A. Milner, Albany, N. Y., and Carroll C. Hyde, South Bend, Ind.

Physiologic and Chemical Changes Associated with Hyperfunctioning Tumors of the Suprarenal Cortex.
Waltman Walters and Randall G. Sprague, Rochester, Minn.
Discussion to be opened by George F. Cahill, New York, and Austin I. Dodson, Richmond, Va.

Chairman's Address. Hamilton W. McKay, Charlotte, N. C.

Analysis of the Treatment of Bladder Tumors.
W. Calhoun Stirling and J. E. Ash, Washington, D. C.

Papillomata of the Bladder.
Herman L. Kretschmer and Edward A. Stika, Chicago.

Vesical Neoplasms of the Female Bladder: A Suggested Surgical Technic. J. Sydney Ritter, New York.
Discussion on papers of Drs. Stirling and Ash, Drs. Kretschmer and Stika and Dr. Ritter to be opened by Ernest Rupel, Indianapolis, and Thomas J. Kirwin, New York.

Friday, June 10—9 a. m.

PANEL DISCUSSION

Prostatic Cancer: Further Investigation of Hormonal Relationships.
Herbert Brendler, W. E. Chase and William W. Scott, Baltimore.

Carcinoma of the Prostate Gland: Results with Conservative Management.
Lloyd R. Reynolds, Thomas L. Schulte and Howard J. Hammer, San Francisco.

Carcinoma of the Prostate: Review of 150 Cases.
William Baurys, Sayre, Pa.
Discussion on papers of Drs. Brendler, Chase and Scott, Drs. Reynolds, Schulte and Hammer and Dr. Baurys to be opened by Reed M. Nesbit, Ann Arbor, Mich., and S. W. Mulholland, Philadelphia.

Postoperative Urinary Incontinence.
Edwin Davis, Omaha.

The Technic for Immediate Diagnosis and Management of Vesical or Urethral Perforations in the Course of Transurethral Procedures.
Herbert R. Kenyon, New York.

Problems Associated with Transurethral Relief of Bladder Neck Obstruction.
John H. Dougherty, Knoxville, Tenn.
Discussion on papers of Drs. Davis, Kenyon and Dougherty to be opened by Wallace L. Bazemore, Macon, Ga., and Richard Chute, Boston.

SECTION ON ORTHOPEDIC SURGERY

MEETS IN ST. DENNIS ROOM OF DENNIS HOTEL

OFFICERS OF SECTION

Chairman—David M. Bosworth, New York.
Vice Chairman—Walter P. Blount, Milwaukee.
Secretary—Joseph S. Barr, Boston.
Executive Committee—Francis M. McKeever, Los Angeles; J. Warren White, Greenville, S. C.; David M. Bosworth, New York.

Wednesday, June 8—9 a. m.

The Effect of Some Common Drugs on the Intra-Articular Temperature.
Steven M. Horvath and Joseph L. Hollander, Philadelphia.
Discussion to be opened by A. R. Shands Jr., Wilmington, Del. and Paul C. Colonna, Philadelphia.

The Distinction Between Osteoarthritis and Osteophytosis of the Spine. Douglas H. Collins, Leeds, England.
Discussion to be opened by Philip D. Wilson, New York and Robert P. Kelly Jr., Atlanta, Ga.

Fibrous Dysplasia of Bone.
Paul Strassburger, C. Zent Garber and Halford Hallock, New York.
Discussion to be opened by C. Glenn Barber, Cleveland, and Douglas H. Collins, Leeds, England.

Parosteal Osteoma or Myoosseous Osteoma.
Charles F. Geschickter and Murray M. Copeland, Washington, D. C.
Discussion to be opened by H. L. Jaffe, New York, and Albert B. Ferguson, Boston.

Irritation of the Tibial and Peroneal Nerves as an Unrecognized Cause of Knee Pain.
Allen S. Lloyd, Washington, D. C.
Discussion to be opened by I. W. Nachlas, Baltimore, and Julius S. Neviaser, Washington, D. C.

The Spontaneous Rupture of the Extensor Pollicis Longus Tendon Following Colles Fracture.
Edwin David Weinberg, Baltimore.
Discussion to be opened by J. S. Donaldson, Pittsburgh, and John H. T. Sweet Jr., Hartford, Conn.

Thursday, June 9—9 a. m.

ELECTION OF OFFICERS

Medullary Nailing: A Comparative Study of Skeletal Traction, Dual Plating and Medullary Nailing.
Dana M. Street, Memphis, Tenn.
Discussion to be opened by G. O. Eaton, Baltimore, and Leslie V. Rush, Meridian, Miss.

Chairman's Address. David M. Bosworth, New York.

The Treatment of Fracture-Dislocation of the Spine by Open Reduction and Internal Fixation.
J. G. Petrie and William V. Cone, Montreal, Canada.
Discussion to be opened by E. F. Cave, Boston, and Harrison L. McLaughlin, New York.

Injuries of the Medial Epicondyle of the Humerus.
Frederick M. Smith, New York.
Discussion to be opened by Leonard T. Peterson, Washington, D. C., and Maurice M. Pike, Hartford, Conn.

Roentgenographic Union of Bone Fragments.
Albert B. Ferguson, Boston.
Discussion to be opened by Lenox D. Baker, Durham, N. C., and Ralph S. Bromer, Bryn Mawr, Pa.

Friday, June 10—9 a. m.

A Summary of the Ski Fractures in the Stowe, Vermont, Area for the Past Five Years.
Robert Leland Maynard, Burlington, Vt.
Discussion to be opened by Kenneth Christophe, Brookline, Mass., and Robert H. Kennedy, New York.

Infection of the Hip Joint by Brucella Suis.
Mark B. Coventry, John C. Ivins, L. A. Weed and D. R. Nichols, Rochester, Minn.
Discussion to be opened by R. Beverly Raney, Durham, N. C., and Benjamin M. Baker Jr., Baltimore.

Pyogenic Arthritis of the Hip in Infants.
Jesse T. Nicholson, Philadelphia.
Discussion to be opened by Henry B. Crawford, Rochester, N. Y., and John A. Heberling, Pittsburgh.

Treatment of Congenital Dislocation of the Hip Without Open Surgery.
Edward L. Compere and William J. Schnute, Chicago.
Discussion to be opened by J. Warren White, Greenville, S. C., and G. deN. Hough Jr., Springfield, Mass.

Metatarsus Adductus More Prevalent Than Clubfoot.
Donald W. McCormick and Walter P. Blount, Milwaukee.
Discussion to be opened by Philip Lewin, Chicago, and Charles W. Peabody, Detroit.

Streptomycin Combined with Surgery in the Treatment of Bone and Joint Tuberculosis.
Alan DeF. Smith and Horace I. Yu, New York.
Discussion to be opened by Charles N. Pease, Chicago, and Paul W. Hugenberger, Boston.

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

MEETS IN ST. DENNIS ROOM OF DENNIS HOTEL

OFFICERS OF SECTION

Chairman—William H. Daniel, Los Angeles.
Vice Chairman—Russell S. Boles, Philadelphia.
Secretary—Grant H. Laing, Chicago.
Executive Committee—Martin S. Kleckner, Allentown, Pa.; Sara M. Jordan, Boston; William H. Daniel, Los Angeles.

Wednesday, June 8—2 p. m.

The Role of the Esophagus in Local and Systemic Disease.
Edwin Boros, New York.
Discussion to be opened by Moses Paulson, Baltimore, and Edward B. Benedict, Boston.

History of Hemorrhage in Ulcer.
Samuel A. Wilkinson Jr. and Martin L. Tracey, Boston.
Discussion to be opened by Donovan C. Browne, New Orleans, and Samuel Marshall, Boston.

Gastric Acidity Before and After Development of Gastric Cancer.
Manfred W. Comfort, Rochester, Minn.
Discussion to be opened by Arthur J. Atkinson, Chicago, and Leon Schiff, Cincinnati.

The Treatment of Hiatus Hernia in Older People.
Otto C. Pickhardt and Henry A. Rafsky, New York.
Discussion to be opened by Irving B. Brick, Washington, D. C., and Herbert Caisle Maier, New York.

Some Fallacies in the Clinical Measurement of Gastric Acidity with Special Reference to the Histamine Test.
Harry Shay, S. A. Komarov and J. Edward Berk, Philadelphia.
Discussion to be opened by H. L. Bockus, Philadelphia, and Franklin Hollander, New York.

The Use of Orally Administered Intestinal Extracts in the Treatment of Peptic Ulcer.
C. W. Wirts and M. H. F. Friedman, Philadelphia.
Discussion to be opened by David J. Sandweiss, Detroit, and H. Marvin Pollard, Ann Arbor, Mich.

A Clinical Evaluation of Various Tests for Occult Blood in the Feces.
Stanley O. Hoerr, William R. Bliss and James Kauffman, Columbus, Ohio.

Melena.
Harold Lincoln Thompson and Devere W. McGuffin, Los Angeles.
Discussion to be opened by Z. T. Bercovitz, New York, and John E. Dunphy, Boston.

The Diagnosis of Lesions Near the Cardia.
John H. Fitzgibbon, Portland, Ore.
Discussion to be opened by Russell Boles, Philadelphia, and Abe Aaron, Buffalo.

Thursday, June 9—2 p. m.

ELECTION OF OFFICERS

Chairman's Address: Obstructive Lesions of the Left Colon and Rectum.
William H. Daniel, Los Angeles.

An Evaluation of Conservative Surgery for Certain Rectal Adenomas Showing Malignant Change.
Samuel McLanahan, Glenn P. Grove and Richard Kieffer Jr., Baltimore.
Discussion to be opened by Harvey B. Stone, Baltimore, and Martin S. Kleckner, Allentown, Pa.

Diastatic Distention and Perforation of the Gastro-Intestinal Tract.
J. M. Ravid, New York.
Discussion to be opened by James P. Croce and Con Amore V. Burt, New York.

The Use of Duodenal Substance in the Treatment of Chronic Ulcerative Colitis.
Michael H. Streicher and Morton I. Grossman, Chicago.
Discussion to be opened by Burrill B. Crohn, New York, and Joseph B. Kirsner, Chicago.

The Association of Chronic Ulcerative Colitis and Carcinoma.
J. A. Bargen and William G. Sauer, Rochester, Minn.
Discussion to opened by Richard B. Cattell, Boston, and Walter L. Palmer, Chicago.

Appraisal of Abdominal Perineal Resection Without Colostomy and with Preservation of Sphincter Musculature Based on 1,000 Cases.
W. W. Babcock and Harry E. Bacon, Philadelphia.
Discussion to be opened by Lawrence Abel, London, England, and Louis E. Moon, Omaha.

Changes in Colon Accompanying Varying Emotional States.
William J. Grace, Stewart G. Wolf Jr. and Harold Wolff, New York.
Discussion to be opened by Thomas P. Almy and Ascher Winkelstein, New York.

Multiple Balloon Kymographic Recordings of the Action of Various Drugs on the Upper Small Intestine in Man.
William P. Chapman and Chester N. Jones, Boston.
Discussion to be opened by Franz Ingelfinger, Boston.

Friday, June 10—9 a. m.

JOINT MEETING WITH SECTION ON PATHOLOGY AND PHYSIOLOGY IN WEDGEWOOD ROOM, CHELSEA HOTEL

Acute and Chronic Pancreatitis. A. C. Ivy, Chicago.
Discussion to be opened by Sara M. Jordan and Sidney Farber, Boston.

Chronic Ulcerative Colitis: Proctoscopic Appearance.
J. Peerman Nesselrod, Evanston, Ill., and Jay M. Garner, Winnetka, Ill.
Discussion to be opened by J. A. Bargen, Rochester, Minn., and Sidney A. Portis, Chicago.

Early Detection of Carcinoma of the Stomach.
David State, Minneapolis.
Discussion to be opened by Russell H. Morgan, Baltimore, and Alexander Brunschweig, New York.

The Value of Gastric Biopsy as Obtained Through the Flexible Operating Gastroscope.
Edward B. Benedict, Boston.
Discussion to be opened by H. J. Moersch, Rochester, Minn., and Cecil O. Patterson, Dallas, Texas.

Diagnostic Problems in Jaundice.
Franklin M. Hanger, New York.
Discussion to be opened by Richard B. Capps, Chicago. and John R. Neefe, Philadelphia.

SECTION ON RADIOLOGY

MEETS IN VENETIAN ROOM OF AMBASSADOR HOTEL

OFFICERS OF SECTION

Chairman—Harry M. Weber, Rochester, Minn.
Vice Chairman—U. V. Portmann, Cleveland.
Secretary—Paul C. Hodges, Chicago.
Executive Committee—Bernard P. Widmann, Philadelphia; W. Walter Wasson, Denver; Harry M. Weber, Rochester, Minn.

Wednesday, June 8—2 p. m.

DIAGNOSTIC SESSION

Chairman's Address: The Significance of the Intestinal Polypoid Lesion.
Harry M. Weber, Rochester, Minn.

Incidence of Hiatus Hernia in Patients Without Symptoms.
Irving B. Brick and Harold I. Amory, Washington, D. C.
Discussion to be opened by Aubrey O. Hampton, Washington, D. C., and Stuart W. Harrington, Rochester, Minn.

X-Ray Differentiation Between Benign and Malignant Gastric Lesions.
Gerhart S. Schwarz, Clifton Springs, N. Y.

Roentgen Manifestations of Small Intestinal Bleeding.
Philip J. Hodes, Philadelphia.

Photofluorography in the Early Detection of Gastric Malignancy.
John F. Roach, Robert D. Sloan and Russell H. Morgan, Baltimore.
Discussion to be opened by Moses Paulson, Baltimore, and Paul C. Hodges, Chicago.

Fractional Air Contrast: Barium Enema for Demonstration of Lesions in the Lower Sigmoid.
Frank S. Windholz, San Francisco.

Thursday, June 9—2 p. m.

ELECTION OF OFFICERS

SYMPOSIUM ON THE X-RAY EXAMINATION OF THE SKULL AND THE BRAIN

(Conducted by Fred J. Hodges, Ann Arbor, Mich.)

Important X-Ray Aspects of the Cranial Vault.
Barton R. Young, Philadelphia.
Discussion to be opened by W. Edward Chamberlain, Philadelphia.

Important X-Ray Aspects of Intracranial Structures.
Merrill C. Sosman, Boston.
Discussion to be opened by Donald D. Matson, Boston.

Cranial Fracture. Lewis E. Etter, Warrendale, Pa.
Discussion to be opened by John F. Holt, Ann Arbor, Mich.

Encephalography. Robert Barden, Philadelphia.
Discussion to be opened by Hans H. Reese, Madison, Wis.

Ventriculography. Fred J. Hodges, Ann Arbor, Mich.
Discussion to be opened by Robert C. Bassett, Ann Arbor, Mich.

Cerebral Angiography.
C. R. Perryman, Baton Rouge, La.
Discussion to be opened by Carl F. List, Grand Rapids, Mich.

Friday, June 10—2 p. m.

THERAPY SESSION

Advances in Cardiovascular Angiography and Aortography as Applied to the Diagnosis of Congenital Heart Disease.
Wendell G. Scott and Sherwood Moore, St. Louis.
Discussion to be opened by Russell H. Morgan, Baltimore, and Edward Neuhauser, Boston.

Roentgen Therapy of Thrombophlebitis.
Jack Lasner, Claude Snead and E. L. Jenkinson, Chicago.
Discussion to be opened by Geza de Takats, Chicago, and Bernard P. Widmann, Philadelphia.

Radiation vs. Surgery for Cancer of the Lip.
George S. Sharp and Herbert F. Williams, Pasadena, Calif.
Discussion to be opened by Douglas Quick and Hayes S. Martin, New York.

The Treatment of Early Cancer of the Larynx.
Max Cutler, Chicago.
Discussion to be opened by John V. Blady, Philadelphia, and H. B. Phillips, New York.

Eradication and/or Palliation of Advanced and Radio-Resistant Tumors by Multicentric Irradiation.
H. Marks, New York.
Discussion to be opened by Maurice Lenz, New York, and David E. Ehrlich, Brooklyn.

Relative Radiosensitivities of Analogous Mammary Tumors. Anna Goldfeder, New York.
Discussion to be opened by Maurice Lenz, New York, and Frederick P. Ellinger, Bethesda, Md.

SECTION ON ANESTHESIOLOGY

MEETS IN VENETIAN ROOM OF AMBASSADOR HOTEL

OFFICERS OF SECTION

Chairman—C. Walter Metz, Denver.
Vice Chairman—Urban Eversole, Boston.
Secretary—John S. Lundy, Rochester, Minn.
Executive Committee—Charles F. McCuskey, Los Angeles; Ralph M. Tovell, Hartford, Conn.; C. Walter Metz, Denver.

Wednesday, June 8—9 a. m.

BUSINESS MEETING FOR PRESENTATION OF RESOLUTIONS TO THE HOUSE OF DELEGATES

REPORT OF DELEGATE ON 1948 SESSION

PANEL ON RELAXANTS

Pentothal-Curare Anesthesia in Upper Abdominal Surgery. Charles D. Anderson, Chicago.

Dimethyl Ether of d-Tubocurarine Iodide as an Adjunct to Anesthesia.
V. K. Stoelting and J. P. Graf, Indianapolis.

Experience with Relaxants During Anesthesia in Australia.
H. V. Daly and S. V. Marshall, Sydney, Australia.

The Use in Anesthesia of a New Synthetic Curarizing Agent. Geoffrey Organe, London, England.
Discussion to be opened by Harold R. Griffith, Montreal, Canada; Stuart C. Cullen, Iowa City, and W. D. M. Paton, London, England.

PANEL ON INTRAVENOUS PROCAINE

Intravenous Procaine Hydrochloride During General Anesthesia.
Ivan B. Taylor, Gerald Edmonds and Walter H. Comer, Detroit.

Some Clinical Experiences with Various Muscle Relaxing Agents in the Management of Patients with Tetanus.
Harold E. Godman and John Adriani, New Orleans.

The Use of Intravenous Procaine in the Management of Arthritis.
David J. Graubard, New York, and Milton C. Peterson, Kansas City, Mo.
Discussion to be opened by Julia G. Arrowood, Boston, and Stevens J. Martin, Hartford, Conn.

Thursday, June 9—9 a. m.

ELECTION OF OFFICERS

Anesthesia for the Paraplegic.
Commander James G. Kurfees (M.C.) U. S. N.; Lieutenant Scott Whitehouse (M.C.) U. S. N., and Lieutenant Frank Cerzosimo (M.C.) U. S. N.
Discussion to be opened by Lewis H. Wright, Great Neck, N. Y., and Dwight D. Grove, Philadelphia.

The Choice of Anesthesia in Patients with Emphysema.
Perry P. Volpitto and John M. Brown, Augusta, Ga.
Discussion to be opened by Irving R. Hayman, Paterson, N. J., and R. Douglas Sanders, Wilmington, Del.

The Use of Sodium Pentothal and Local Procaine Anesthesia in Extrapleural Thoracoplasty in the Treatment of Pulmonary Tuberculosis.
Major Walter L. Lumpkin, Medical Corps, U. S. A., and Colonel James H. Forsee, Medical Corps, U. S. A.
Discussion to be opened by Lieutenant Colonel Charles H. Mitchell, Medical Corps, U. S. A., and M. Gene Black, Holyoke, Mass.

Chairman's Address: Anesthesia, Past and Present.
C. Walter Metz, Denver.

Complications of Spinal Anesthesia: An Evaluation of Complications Encountered in 7,000 Patients.
Clarence L. Hebert, Staten Island, N. Y., and Carl E. Tetirick, Columbus, Ohio.
Discussion to be opened by Lieutenant Colonel John Gardiner, M.C., U. S. A., and Mayer Saklad, Providence, R. I.

Supportive Therapy During Anesthesia and Operation.
Thomas H. Seldon, Rochester, Minn.
Discussion to be opened by Donald E. Hale, Cleveland, and Earl F. Weir, Dallas, Texas.

Friday, June 10—9 a. m.

JOINT MEETING WITH SECTION ON SURGERY, GENERAL AND ABDOMINAL, IN AMERICAN ROOM, HOTEL TRAYMORE

Preliminary Report of the Committee on Operative Mortality. Frederick P. Haugen, Portland, Ore.
Discussion to be opened by Henry K. Beecher, Boston, and Ambrose H. Storck, New Orleans.

Management of Pain.
F. A. Duncan Alexander, McKinney, Texas, and T. McD. Anderson, Dallas, Texas.
Discussion to be opened by Henry S. Ruth, Haverford, Pa., and James C. White, Boston.

Cyclopropane Anesthesia.
Lloyd H. Mousel, Washington, D. C.
Discussion to be opened by Robert D. Dripps, Philadelphia, and Frank B. Berry, New York.

Cardiac Arrest During Anesthesia and Surgery.
Claude S. Beck and H. J. Rand, Cleveland.
Discussion to be opened by Thomas J. Dry, Rochester, Minn., and Frank Lahey, Boston.

Anesthesia in Thoracic Surgery.
John C. Jones, Los Angeles.
Discussion to be opened by Charles F. McCuskey, Los Angeles, and Victor Richards, San Francisco.

Anesthesia in Infants and Young Children for Major Surgical Procedures. C. R. Stephen, Montreal, Canada.
Discussion to be opened by Curtiss B. Hickcox, Hartford, Conn., and Edward J. Donovan, New York.

SECTION ON GENERAL PRACTICE

MEETS IN TRIMBLE HALL OF CLARIDGE HOTEL

OFFICERS OF SECTION

Chairman—Winfred B. Harm, Detroit.
Vice Chairman—Milton B. Casebolt, Kansas City, Mo.
Secretary—Thomas E. Robinson, Salt Lake City.
Executive Committee—Paul A. Davis, Akron, Ohio; Eric A. Royston, Los Angeles; Winfred B. Harm, Detroit.

Wednesday, June 8—9 a. m.

Chairman's Address. W. B. Harm, Detroit.

Approach to the Diagnosis of Common Types of Congenital Heart Disease. David I. Rutledge, Boston.

Recent Advances in the Treatment of Hematologic Disorders. Cyrus C. Sturgis, Ann Arbor, Mich.
Discussion to be opened by Robert A. Hettig, Houston, Texas, and S. M. Goldhamer, Cleveland.

Diagnosis and Treatment of Acute Coronary Diseases.
Arthur M. Master and Simon Dack, New York.
Discussion to be opened by B. S. Oppenheimer, New York, and L. Reiner, Belleville, N. J.

Contributions to the Therapy of the Varicose Complex.
Egmont J. Orbach, New Britain, Conn.
Discussion to be opened by William M. Cooper, New York, and L. Reiner, Belleville, N. J.

A High Calory Diet in the Treatment of Diarrhea in Infancy. Edward Scott O'Keefe, Lynn, Mass.

The Treatment of Allergies as Seen in General Practice.
Fred W. Wittich, Minneapolis.
Discussion to be opened by Harold A. Abramson, New York, and George E. Rockwell, Milford, Ohio.

Thursday, June 9—9 a. m.

ELECTION OF OFFICERS

Diagnosis of Osteoarthritis.
Augustus M. Davison, Hot Springs National Park, Ark.

Results of Gold Therapy in Early Cases of Rheumatoid Arthritis.
Chester H. Adams and Russell L. Cecil, New York.
Discussion to be opened by Richard H. Freyberg and Ralph H. Boots, New York.

Diagnosis and Treatment of Mechanical Backache: The Most Common Type of Low Back Pain.
George S. Phalen, Cleveland.

The Injection of Analgesic Drugs in the Treatment of Musculofascial Pain.
Ralph L. Gorrell, Clarion, Iowa.
Discussion to be opened by Janet Travell, New York.

Friday, June 10—9 a. m.

Hernia in General Practice.
Edward F. McLaughlin, Philadelphia.

Newer Concepts of Recognition and Prevention of Congenital Dislocations of the Hip.
Reed S. Clegg, Salt Lake City.

The Diagnosis and Treatment of Cancer of the Lower Gastrointestinal Tract.
Fred W. Rankin, Lexington, Ky.
Discussion to be opened by T. E. Jones, Cleveland, and R. K. Gilchrist, Chicago.

War Surgery: Motion Picture in Color of Front Line Surgery. William C. Roberts, Panama City, Fla.

Jaundice. Philip Thorek, Chicago.
Discussion to be opened by Elmer C. Texter, Detroit, and R. B. Robins, Camden, Ark.

Intrathoracic Neoplasia.
Alton Ochsner, New Orleans.
Discussion to be opened by Brian B. Blades, Washington, D. C., and William F. Rienhoff, Baltimore.

SECTION ON DISEASES OF THE CHEST

MEETS IN TRIMBLE HALL OF CLARIDGE HOTEL

OFFICERS OF SECTION

Chairman—S. U. Marietta, Washington, D. C.
Vice Chairman—Harry C. Warren, San Francisco.
Secretary—Jay A. Myers, Minneapolis.

Wednesday, June 8—2 p. m.

Chairman's Address. S. U. Marietta, Washington, D. C.

Streptomycin and Dihydrostreptomycin in the Treatment of Tuberculosis. H. McLeod Riggins, New York.
Discussion to be opened by Herman E. Hilleboe, Albany, N. Y., and S. A. Waksman, New Brunswick, N. J.

Individual Variations in the Pulmonary Reaction to Dust.
Arthur J. Vorwald, Saranac Lake, N. Y.
Discussion to be opened by A. J. Lanza, New York, and J. J. Waring, Denver.

What Can Prophylactic Vaccination (BCG) Against Tuberculosis Contribute to the Control of This Disease? Edgar M. Medlar, Sunmount, N. Y.
Discussion to be opened by Robert J. Anderson, Washington, D. C., and Henry C. Sweany, Chicago.

Bronchial Adenoma.
Herman J. Moersch and John R. McDonald, Rochester, Minn.
Discussion to be opened by Porter P. Vinson, Richmond, Va., and Seymour M. Farber, San Francisco.

The Evaluation of Artificial Pneumothorax and Pneumoperitoneum. Andrew L. Banyai, Milwaukee.
Discussion to be opened by Harold G. Trimble, Oakland, Calif., and Benjamin L. Brock, Downey, Ill.

Thursday, June 9—2 p. m.

ELECTION OF OFFICERS

Limitations of X-Ray Examination in the Diagnosis of Diseases of the Chest. Leo G. Rigler, Minneapolis.
Discussion to be opened by Lawrence L. Robbins, Boston, and Philip Hodes, Philadelphia.

Pulmonary Emphysema. Edgar Mayer, New York.
Discussion to be opened by Alvan L. Barach, New York, and Maurice S. Segal, Boston.

The Silent Phase of Lung Cancer.
Richard H. Overhold, Brookline, Mass.
Discussion to be opened by John E. Dunn, Washington, D. C., and Otto C. Brantigan, Baltimore.

A Critical Evaluation of Mass X-Ray Surveys.
David A. Cooper and Katharine R. Boucot, Philadelphia.
Discussion to be opened by William Roemmick, Baltimore, and W. E. Chamberlain, Philadelphia.

Pulmonary Mycosis. David T. Smith, Durham, N. C.
Discussion to be opened by Chris J. D. Zarafonetis, Ann Arbor, Mich., and Hollis E. Johnson, Nashville, Tenn.

SECTION ON MISCELLANEOUS TOPICS

SESSION ON PHYSICAL MEDICINE AND REHABILITATION

MEETS IN OCEAN HALL OF MARLBOROUGH-BLENHEIM HOTEL

OFFICERS OF SESSION

Chairman—Howard A. Rusk, New York.
Secretary—Frank H. Krusen, Rochester, Minn.

Wednesday, June 8—9 a. m.

The Principles of Remedial Exercise.
Svend Clemmesen, Copenhagen, Denmark.

Coordination Exercises and Vitamin B_{12} for Combined Degeneration of the Spinal Cord in Pernicious Anemia.
Frank H. Krusen, Byron E. Hall and Henry W. Woltman, Rochester, Minn.

The Rehabilitation of Quadriplegics.
Samuel S. Sverdlik and Howard A. Rusk, New York.

Physical Medicine and Rehabilitation in the Veterans Administration. Lewis B. Newman, Hines, Ill.

PANEL DISCUSSION ON CERTAIN COMMON PROCEDURES IN PHYSICAL MEDICINE AND REHABILITATION

Howard A. Rusk, New York, Moderator

What Every Physician Should Know About the Teaching of Crutch Walking. George G. Deaver, New York.

What Every Physician Should Know About Occupational Therapy. Sidney Licht, Boston.

What Every Physician Should Know About Prescribing Physical Therapy.
Gordon M. Martin, Rochester, Minn.

What Every Physician Should Know About the Office Practice of Physical Medicine and Rehabilitation.
George M. Piersol, Philadelphia.

What Every Physician Should Know About the Hospital Practice of Physical Medicine and Rehabilitation.
William D. Paul, Iowa City.

Thursday, June 9—9 a. m.

Physical Medicine as Related to Rheumatic Diseases.
William S. C. Copeman, London, England.

What the Council on Physical Medicine and Rehabilitation Has to Offer the Physician.
John S. Coulter, Howard A. Carter and Frederic T. Jung, Chicago.

Physical Treatment of Common Lesions of the Shoulder.
William S. Tegner, London, England.

Physical Medicine in Peripheral Vascular Diseases.
William Bierman, New York.

PANEL DISCUSSION ON CERTAIN COMMON INDICATIONS FOR PHYSICAL MEDICINE AND REHABILITATION

Howard A. Rusk, New York, Moderator

What Every Physician Should Know About the Rehabilitation of the Crippled Child.
Alfred R. Shands Jr., Wilmington, Del.

What Every Physician Should Know About the Physical Treatment of Backache. Hans Kraus, New York.

What Every Physician Should Know About Physical Medicine and Rehabilitation in Prevention of Chronic Invalidism.
F. A. Hellebrandt, Richmond, Va.

What Every Physician Should Know About Physical Fitness. Robert C. Darling, New York.

What Every Physician Should Know About Physical Medicine and Rehabilitation for Industrial Injuries.
Donald A. Covalt, New York.

SESSION ON ALLERGY

MEETS IN RENAISSANCE ROOM OF AMBASSADOR HOTEL

OFFICERS OF SESSION

Chairman—CHARLES H. EYERMANN, St. Louis.
Secretary—HARRY L. HUBER, Chicago.

Friday, June 10—9 a. m.

Asthma in Children: Salient Diagnostic Problems. BRET RATNER, New York.
Discussion to be opened by JAMES C. OVERALL, Nashville, Tenn.

Rationale of Therapy with Bacterial Vaccines in Allergic Diseases. OSCAR SWINEFORD JR., Charlottesville, Va.
Discussion to be opened by WALTER S. BURRAGE, Boston.

Status Asthmaticus. GEORGE PINESS, Los Angeles.
Discussion to be opened by MAURICE S. SEGAL, Boston.

Provocative Diets in the Recognition of Food Allergy. HOWARD J. LEE, Milwaukee.
Discussion to be opened by HAL McC. DAVISON, Atlanta, Ga.

Dermatoses Which May Have an Allergic Etiology. JAMES R. WEBSTER, Chicago.
Discussion to be opened by NELSON Paul ANDERSON, Los Angeles.

The Clinical Indications and Limitations of the Antihistaminic Drugs in Allergy. WALTER L. WINKENWERDER, Baltimore.
Discussion to be opened by J. HARVEY BLACK, Dallas, Texas.

Chairman's Address: Clinical Experiences with the Diagnosis of Asthma. CHARLES H. EYERMANN, St. Louis.

THE SCIENTIFIC EXHIBIT

Fiftieth Anniversary

FRANK B. WYNN

Founder of the Scientific Exhibit, American Medical Association

Frank B. Wynn was born in 1860 at Brookville, Ind. He graduated from DePauw University in 1883 and from the Medical College of Ohio in 1885. After graduation he was in general practice five years and then studied in the great medical centers of Europe, majoring in pathology, diagnosis and internal medicine. He began the practice of medicine in Indianapolis in 1893.

From the first he was greatly interested in the scientific aspects of medicine and was much more eager to use scientific laboratory methods than were the practitioners of that time. He insisted that postmortem examinations be made whenever possible. His zeal for these examinations was such that he went at all hours of the day and night to make such inquests for his fellow practitioners. He was severely criticized by his patients, by the public and even by some physicians who felt that his scientific interest was running away with his concern for the patient. Nevertheless he was extremely kind and unusually interested in the welfare of his patients.

As Dr. Wynn made these examinations he began to accumulate a collection of pathologic specimens. He used them in his clinical teaching at the Medical College of Indiana, with which he was connected as lecturer on physiology and demonstrator of pathology. He was a master in the art of physical diagnosis. As a teacher he was an inspiration to his students, and yet he was a strict preceptor. He would not tolerate slipshod work. He became professor of medicine at the Medical College in 1895 and held the position until his death.

Dr. Frank B. Wynn

In 1898 Dr. Wynn prepared a pathologic exhibit for the Indiana State Medical Meeting held on the campus of Purdue University at Lafayette. This exhibit was of great interest to the members, most of whom had never seen anything of the sort. It was suggested that the exhibit be taken to the 1899 Session of the American Medical Association at Columbus, Ohio. The Indiana State Medical Association voted the sum of $300 to pay the expenses of the venture. This was a new departure for the American Medical Association, and no provision had been made for the housing of such an exhibit.

Dr. Wynn, with the help of certain loyal workers, rented a room near the Grand Opera House where the Convention was meeting. He built shelves and tables with his own hands and in this humble way prepared an exhibit which made a deep impression on the members of the American Medical Association.

It was decided that such an exhibit should be continued and enlarged. A committee was unofficially appointed (THE JOURNAL, Jan. 20, 1900, p. 187) to carry out such plans. Dr. Wynn was secretary of this committee. Further action was taken (THE JOURNAL, March 17, 1900, p. 701) as follows:

> "Following the lead taken by the Indiana State Medical Society, at Columbus last June, in making an exhibit of pathological specimens it has been thought advisable to encourage such efforts, and this year there will be a more general exhibit in the exhibit hall."

Somewhat later there were created a Section on Pathology and a separate Scientific Exhibit. Dr. Wynn continued active in this work and served as chairman of the Committee on Scientific Exhibit (1901-1916). His chairman's address in the Section on Pathology in 1903 continues to set out the policies of the exhibit and was a masterpiece of wisdom and foresight.

In 1912 (THE JOURNAL, June 15, 1912, p. 58) Dr. Miles F. Porter of Fort Wayne, Ind., moved that whoever has charge of the location of the exhibit be instructed by the House of Delegates hereafter to give first choice of location to the Scientific Exhibit in Exhibition Hall.

Dr. Wynn was a man of the highest character, of fine appearance, striking personality, great earnestness and industry. He was a most conscientious physician and an honor to his state, his school and the medical profession. He was fond of mountain climbing and was killed as a result of a fall from Mt. Siyeh, Glacier National Park, July 27, 1922. His only son, James, died some twenty years ago, leaving a daughter, Barbara, who has recently received a master's degree at the University of Chicago and will hold a position in Northwestern University this coming year.

It is most fitting that Dr. Wynn's name be honored on the occasion of the Fiftieth Anniversary of the founding of the Scientific Exhibit.

The Scientific Exhibit will be located on the main floor and the stage of Convention Hall, with entrances from the Technical Exhibit. Clinical conferences will be held in special rooms on the second floor of Convention Hall.

The eighteen sections of the Scientific Assembly have arranged groups of exhibits dealing with the various specialties of medicine, but emphasis will be placed on the interest of the physician in general practice rather than that of the specialist. Two special exhibits have been authorized by the Board of Trustees—one dealing with fractures and the other observing the Fiftieth Anniversary of the founding of the Scientific Exhibit. Other features include exhibit symposiums on diabetes, arthritis and physical medicine. Clinical lectures will be conducted on diabetes and clinical pathology, while an outstanding group of motion pictures will be shown continuously throughout the week.

Admission to the Scientific Exhibit will be limited to persons wearing the Fellowship badge or other official badge of the Convention. The public will not be admitted to the Scientific Exhibit.

Thomas G. Hull, Director,
Scientific Exhibit

SPECIAL EXHIBITS

The Committee on Scientific Exhibit is sponsoring two special exhibits—one on fractures and the other on the Fiftieth Anniversary of the Scientific Exhibit.

Special Exhibit on Fractures

The Board of Trustees has again authorized a Special Exhibit on Fractures under the auspices of the following committee:

Kellogg Speed, Chicago, chairman.
Frederick A. Jostes, St. Louis.
Gordon M. Morrison, Boston.

The local representative of the Committee is Wilson S. Rise, Atlantic City.

The purpose of the exhibit is to stress elementary points in treatment based on the pathology of each type of fracture for instruction of the general practitioner.

Continuous demonstrations will be conducted daily from 9:00 a.m. to 12:00 noon and from 2:00 p.m. to 4:00 p.m. in six booths. The subjects covered this year are as follows:

Fracture of the Shaft of the Femur—Skin Traction in Bed.
Fracture of the Carpal Navicular.
Emergency Treatment, Fractures of the Lower Extremity.
Fixed Traction for Transportation.
Fractures of the Lower End of the Radius.
Fracture of the Ankle.
Compression Fracture of the Bodies of the Vertebrae.

A pamphlet has been prepared for distribution, giving the essential features of the exhibit.

Fiftieth Anniversary Exhibits

The Board of Trustees has authorized a group of exhibits commemorating the founding of The Scientific Exhibit in 1899. The first exhibit was on pathology, presented by the Indiana State Medical Association under the direction of Dr. Frank B. Wynn. The present exhibit deals with the life and activities of Dr. Wynn and shows the advances in pathology during the past fifty years.

The committees in charge are as follows:

Indiana Committee:

- Thurman B. Rice, Indianapolis, chairman.
- James O. Ritchey, Indianapolis.
- E. Vernon Hahn, Indianapolis.

Clinical Laboratory Committee:

- Peter A. Herbut, Philadelphia, chairman.
- Frank W. Konzelmann, Atlantic City, co-chairman.
- William P. Belk, Philadelphia, co-chairman.
- Frank Lynch, Philadelphia.
- Robert Norris, Philadelphia.
- Ernest Aegerter, Philadelphia.
- Claude P. Brown, Philadelphia.

Historical Exhibit

Presented by the Indiana Committee, in Cooperation with the Indiana University Medical School and the Indiana State Medical Association, Indianapolis.

This exhibit deals with the life and activities of Dr. Frank B. Wynn, who founded the Scientific Exhibit in 1899. Material showing some of the early exhibits and other memorabilia are presented.

Clinical Laboratory Exhibit

Presented by the Clinical Laboratory Committee in Cooperation with the Philadelphia Pathological Society and the Section on Clinical Pathology, Philadelphia County Medical Society.

The purpose of this exhibit is to present routine and accepted methods which should be a part of every clinical study, wherein the methods yield useful information. The general practitioner and others interested in the application of laboratory methods to the diagnosis of disease will find physician demonstrators available to discuss the principles, the application, the preparation of the patient and the interpretation of results. This may be considered a miniature postgraduate course in laboratory medicine for the benefit of the clinician.

I. Lowell A. Erf, Jefferson Medical College, Philadelphia:

Hematology: Bone marrow aspiration from sternum, vertebras and iliac crest will be discussed and demonstrated. Case records involving the Rh factor in which erythroblastosis or transfusion reactions have occurred will be presented. The Coombes test and its evaluation; a study of body fluid extent and the value of hematocrit readings will be presented also.

II. *Surgical Pathology:* Each day fresh unfixed material will be demonstrated, brought directly from the operating rooms of Philadelphia and Atlantic City Hospitals. In selected cases, frozen sections will be prepared and the microscopy discussed. There will be special demonstrations as follows:

A.—P. A. Herbut, Jefferson Medical College, Philadelphia:

Tumor Cytology: Smears, prepared by the Papanicolaou method, of sputum, bronchial secretions, pleural and ascitic fluid, urine, prostatic secretions and vaginal secretions will be demonstrated. Both normal and cancerous cells will be shown and the technic of obtaining the material and preparing the slides will be discussed.

B.—E. E. Aegerter, Temple University Medical School, Philadelphia:

Aspiration Biopsy: Demonstrations of the technic of handling small tissue specimens and needle aspiration biopsies, with illustrating slides, will be presented.

C.—Frank W. Konzelmann, Atlantic City Hospital, Atlantic City, N. J.:

Histoplasmosis: Demonstration of organisms in tissue and in culture.

III. S. Brant Rose, Chestnut Hill Hospital, Philadelphia.

Serology: Demonstration of Kline and Kolmer Wassermann tests. The cardiolipin antigen will be employed and its significance discussed. The heterophil antibody reaction in infectious mononucleosis and the Davidson differential test will be demonstrated.

IV. John W. Howard and E. G. Scott, The Delaware Hospital, Wilmington, Del.:

Medical Bacteriology: The exhibit demonstrates the thesis "Bacteriology as an Aid to Specific Therapy." As such, it will present illustrative examples of (1) the proper collection of bacteriologic specimens; (2) their prompt inoculation to appropriate culture mediums; (3) the steps required in a careful identification of pathogens and (4) the determination of the sensitivities of these organisms to antibiotic agents.

V. Lester Rauer, Frankford Hospital, Philadelphia:

Biochemical Methods: Methods and equipment commonly used in laboratory for acid-base and fluid balance determinations will be demonstrated. Certain newer, simplified procedures that allow for rapid determination of the foregoing will also be shown. The clinical application of results and the need for clinical laboratory teamwork are emphasized in the exhibit.

VI. Paul A. Greenmeyer, Radio Corporation of America, New York:

Electron Microscope: Radio Corporation of America will demonstrate two working models of the RCA Electron Microscope, and will show the technic employed in electron microscopy. In order to reveal the results obtained, there will be a comprehensive display of electron micrographs of viruses, bacterial pathogens, bacteriophage and cytologic specimens of interest to the medical profession. The electron microscopes will be operated to present visual evidence of the research accomplishments of medical science by means of this powerful tool. Specimens will be inserted in the electron microscope so that visitors may view projected images. This educational display will also attempt to indicate the future role of electron microscopy in direct diagnosis and clinical applications.

Clinical Lectures on Laboratory Methods

These lectures (to be given in committee room 3, second floor) will supplement the demonstrations on clinical laboratory methods given in the exhibit booths.

TUESDAY, June 7

10:15 a.m. *Fluid Balance.* William P. Belk, Episcopal Hospital, Philadelphia.

2:15 p.m. *Tumor Cytology. A Discussion of the Stained Smear in the Diagnosis of Cancer.* Peter A. Herbut, Jefferson Medical College, Philadelphia.

WEDNESDAY, June 8

10:15 a.m. *Interpretation of Serologic Tests for Syphilis. A Special Comment on the V.D.R.L. Slide Test.* S. Brant Rose, Chestnut Hill Hospital, Philadelphia.

2:15 p.m. *The Virus Diagnostic Research Laboratory.* M. Michael Sigel, University of Pennsylvania, Philadelphia.

THURSDAY, June 9

10:15 a.m. *Vitamin B_{12} in Blood Dyscrasias.* Lowell A. Erf, Jefferson Medical College, Philadelphia.

2:15 p.m. *Hyperglycemic and Hypoglycemic States.* Paul Cutler, Atlantic City Hospital, Atlantic City, N. J.

EXHIBIT SYMPOSIUM ON DIABETES

The following exhibits on diabetes are presented:

ELLIOTT P. JOSLIN, HOWARD F. ROOT, PRISCILLA WHITE, ALEXANDER MARBLE and ALLEN P. JOSLIN, George F. Baker Clinic, New England Deaconess Hospital, Boston:

Progress in the Treatment of Diabetes Mellitus: New data are presented on the treatment of diabetes and its complications, including coma, pregnancy, gangrene and surgery. Analyses of patients who have outlined their normal life expectancy after the onset of diabetes are shown, with a follow-up of 30,000 cases, including 2,700 childhood cases.

LOUIS I. DUBLIN, DONALD B. ARMSTRONG and HERBERT H. MARKS, Metropolitan Life Insurance Company, New York:

Progress in Diabetes — The Statistical Picture: Charts illustrate the trends in mortality from diabetes; (1) sex, age, regional, and other variations in mortality and morbidity from the disease; (2) new life tables for diabetic persons showing the progressive increase in expectation of life and comparisons with the general population; (3) factors influencing the longevity of persons with diabetes; (4) trends in the causes of death of diabetic persons and comparisons with the general population.

HUGH L. C. WILKERSON, Diabetes Section, United States Public Health Service, Boston:

Diabetes Detection and Education: The results of diabetes early case-finding work with referrals of cases to practicing physicians for therapy are depicted. A diabetes screening and detection booth will be operated, where all physicians and others attending the convention are invited to have a blood sugar analysis. The importance of cooperation between practicing physicians, health departments, voluntary organizations, research institutions and teaching institutions such as medical schools is emphasized.

FRANK N. ALLAN, Boston, **CHARLES H. BEST**, Toronto, and **GEORGE E. ANDERSON**, Brooklyn, American Diabetes Association:

Diabetes: The activities of the American Diabetes Association are presented.

Clinics and Conferences on Diabetes

Clinics and conferences on diabetes will be conducted by members of the George F. Baker Clinic and the American Diabetes Association under the chairmanship of Dr. Howard F. Root, Boston, in a conference room on the second floor of Convention Hall, directly above the diabetes exhibits.

The program follows:

MONDAY, June 6

2:00 p.m. *Diabetes Detection.* Howard F. Root, Boston.
2:30 p.m. *Insulin and Diabetes.* Charles H. Best, Toronto.
3:00 p.m. *Pitfalls of Diagnosis.* Henry J. John, Cleveland.
3:30 p.m. *Hypoglycemia.* Alexander Marble, Boston.
4:00 p.m. *Medical Treatment of Surgical Diabetes.* John A. Reed, Washington.
4:30 p.m. (title and name to come)

TUESDAY, June 7

10:00 a.m. *Diabetes and Thyroid Disease.* Frank N. Allan, Boston.
10:30 a.m. *Office Treatment.* Frederick W. Hipwell, Toronto.
11:00 a.m. (title to come). Alexander Marble, Boston.
11:30 a.m. *Prevention of Gangrene.* William H. Olmstead, St. Louis.
12 noon *Intercapillary Glomerulosclerosis.* Cecil Striker, Cincinnati.
12:30 p.m. *Diabetic Coma.* Howard F. Root, Boston.
1:00 p.m. *Use of Intermediate Insulins.* Arthur R. Colwell, Evanston.
1:30 p.m. *Diet and Insulin.* Alexander Marble, Boston.
2:00 p.m. *Insulin Resistance.* Leon Smelo, Birmingham.
2:30 p.m. *Arteriosclerosis.* Byron Bowen, Buffalo.
3:00 p.m. (title and name to come)
3:30 p.m. *Diabetes nad Surgery.* Howard F. Root, Boston.
4:00 p.m. *Pregnancy.* Lester J. Palmer, Seattle.
4:30 p.m. (title and name to come)

WEDNESDAY, June 8

10:00 a.m. *Diabetic Emergencies.* Allen P. Joslin, Boston.
10:30 a.m. *Is Hyperglycemia Harmful?* Henry T. Ricketts, Chicago.
11:00 a.m. *Diabetic Feet.* Frederick W. Williams, New York.
11:30 a.m. (title and name to come)
12 noon *Hypoglycemia.* Thomas P. Sharkey, Dayton.
12:30 p.m. *Insulin Atrophy.* Henry B. Mulholland, Charlottesville, Va.
1:00 p.m. (title and name to come)
1:30 p.m. *Pregnancy.* Priscilla White, Boston.
2:00 p.m. *Diabetes and Surgical Emergencies.* James A. Greene, Houston.
2:30 p.m. (title and name to come)
3:00 p.m. *Thyroidism and Diabetes.* Cyril MacBryde, St. Louis.
3:30 p.m. (title and name to come)
4:00 p.m. (title and name to come)

THURSDAY, June 9

10:00 a.m. (title and name to come)
10:30 a.m. (title to come). Allen P. Joslin, Boston.
11:00 a.m. Diagnosis. Thomas P. Sharkey, Dayton.
11:30 a.m. *Metabolism of the Uncontrolled Diabetic.* Herbert Pollack, New York.
12 noon *Modified PZI vs Globin Insulin.* Cyril MacBryde, St. Louis.
12:30 p.m. (title and name to come)
1:00 p.m. *Diet and Insulin.* Charles W. Styron, Raleigh, N. C.
1:30 p.m. (title and name to come)
2:00 p.m. Juvenile Diabetes. Priscilla White, Boston.
2:30 p.m. *Public Health and Diabetes.* Hugh L. C. Wilkerson, Boston.
3:00 p.m. *Acidosis.* Arthur R. Colwell, Evanston.

EXHIBIT SYMPOSIUM ON ARTHRITIS

The following exhibits on arthritis are presented in cooperation with the Arthritis and Rheumatism Foundation, New York:

P. S. HENCH and R. K. GHORMLEY, Mayo Clinic, Rochester, Minnesota, and **E. F. ROSENBERG**, Chicago:

Types of Rheumatic Disease: Exhibit presents a summary of the pathologic features together with characteristic clinical and roentgenologic changes of the commoner rheumatic diseases, such as rheumatoid arthritis, gout, gonorrheal and other specific arthritides, fibrositis, hypertrophic arthritis, Heberden's nodes, Charcot's joint, tuberculous arthritis and osteochondromatosis. Each type of disease is illustrated by means of clinical photographs, roentgenograms, histologic preparations and moulages.

William D. Robinson and Isadore Lampe, University Hospital, Ann Arbor, Mich., and Charley J. Smyth, Wayne County General Hospital, Eloise, Mich.:

Rheumatoid Spondylitis—Early Diagnosis and Treatment: The early symptoms, physical findings and roentgen appearance of this disease and its course are illustrated. Criteria for establishing the diagnosis are listed. Serial roentgenograms over a number of years are to depict stages of the disease and the immediate and long range results of roentgen therapy are presented. Indications for physical therapy are given.

Donald F. Hill, W. Paul Holbrook, C. A. L. Stephens, Leo J. Kent and Edna McCarthy, Tucson, Ariz.:

Treatment of Rheumatoid Arthritis: The exhibit shows the general basic outline of treatment of rheumatoid arthritis, including elective methods and doubtful methods. Photographs of ways in which deformities develop and methods of preventing them are presented, together with a system of corrective exercises. Correction of deformities are depicted, with methods and examples.

John H. Talbott, L. Maxwell Lockie and Bernard M. Norcross, University of Buffalo Medical School and Buffalo General Hospital, Buffalo, N. Y.:

Diagnosis and Treatment of Gouty Arthritis: The criteria are presented which are useful in the diagnosis of gout and gouty arthritis and for treatment of intercritical gout and acute gouty arthritis. Essential features of the disease are shown, together with some pertinent references to its history.

Robert M. Stecher, Walter M. Solomon and Ralph Wolpaw, Arthritic Clinic, City Hospital and Western Reserve University School of Medicine, Cleveland:

Heberden's Nodes—Osteoarthritis of Finger Joints: Heberden's nodes arise from trauma or idiopathically. The idiopathic type occurs ten times as commonly in women as in men. Incidence in women varied from 0.4 per cent in fourth decade to 30 per cent in ninth decade. The age of 99 women at onset ranged from 33 to 65 years, median age 49.8 years. Mothers were involved twice, sisters three times, as often as general population. Inheritance is a single autosomal factor, sex influenced, dominant in women and recessive in men, 30 per cent of women, .3 per cent of men being genotypically susceptible. Heberden's nodes and menopause are associated, having occurred within three years of each other in nearly half the cases. Correlation coefficient was +0.46 indicating common etiologic factors. Heberden's nodes are prevented when nerve supply is defective because of upper motor neuron lesion in stroke, or lower motor neuron lesion in anterior poliomyelitis or peripheral nerve section. Roentgenograms show spur formation on ventral and dorsal aspects of both bones of the joints. Heberden's nodes associated with abnormal incidence of osteoarthritis of other joints. There is no known prevention or cure. Heberden's nodes are a benign innocuous form of osteoarthritis. Better understanding of this disease may help solve more serious problems of joint disease.

Otto Steinbrocker, S. A. Isenberg, Sheldon Schwartz and Lyon Lapin, Bellevue Hospital, Fourth Medical Division, New York University, New York:

Reflex Dystrophy in the Extremities—Including Shoulder-Hand Syndrome: The various clinical features of reflex dystrophy are presented, with an analysis of causal factors and evaluation of therapy and results, especially with sympathetic block; illustrations of procedures.

Charles A. Ragan, Albert W. Grokoest, Hilary H. Holmes, James A. Coss, Jr. and Ralph H. Boots, Edward Daniels Faulkner Arthritis Presbyterian Hospital, New York:

Mesenchymal Tissue in Relation to Arthritis: A comparative study is presented of changes in the supporting structures, with particular reference to the interfibrillar substance in rheumatoid arthritis and other diseases with joint manifestations.

Richard H. Freyberg, Joseph J. Lankin and Jacques Durivage, Hospital for Special Surgery, Cornell University Medical College, New York:

Gold Therapy for Rheumatoid Arthritis: Knowledge now available concerning the nature of gold compounds and their behavior in the human body has proved a more scientific background for the physician to make a more accurate appraisal of the value of gold therapy and its shortcomings. This more fundamental information is presented, as background for the practical considerations of the choice of gold compound for clinical use, manner of administration and precautions to be employed. To help lessen the currently prevalent abuse of gold therapy, considerations of the selection of patients for such treatment, limitations of its value, potential toxicity and management of toxic reactions are emphasized. Trends of investigation that may improve gold treatment of rheumatoid arthritis are considered.

Theodore B. Bayles and Theodore A. Potter, Robert B. Brigham Hospital, Boston:

Medical and Orthopedic Treatment of Rheumatoid Arthritis: The classification of the common arthritides, the differential diagnosis of rheumatoid arthritis and other common conditions and the outline for the general medical and orthopedic care of the patient are presented. Photographs outlining the use of plaster shells in the care of joints by the orthopedists are displayed, as well as photographs of operative procedures.

Arthritis And Rheumatism Foundation, New York:

Arthritis and Rheumatism: Information and literature are available regarding the nationwide campaign against arthritis and rheumatism.

Joseph J. Bunim, Edward J. Bien, Currier McEwen, Leon Sokoloff and Sigmund Wilens, New York University College of Medicine, New York:

Rheumatic Diseases—Histologic and Biochemical Changes in Skeletal Muscle: Muscle was examined by biopsy from 202 persons, including 13 normal volunteers. Approximately 400 serial sections were made from each biopsy and every fifth section was studied.

Lesions similar to those previously described as specific for rheumatoid arthritis were found in 56 per cent of patients with rheumatoid arthritis. Lesions indistinguishable from these, however, were found in 3 of the 13 normal persons and in some patients with rheumatoid spondylitis, rheumatic fever, osteoarthritis, tuberculous arthritis, gout, subacute bacterial endocarditis and in several other diseases. These observations indicate that the muscle nodule described in rheumatoid arthritis is probably of no diagnostic value.

Muscle samples obtained by biopsy from 40 patients, including 13 normal controls, were analyzed for their contents of water, total protein, nonprotein nitrogen, myosin, collagen and adenosinetriphosphatase activity of the myosin. In patients with atrophy associated with various types of arthritis or with simple disuse, there were significant changes in muscle composition which included: (1) decrease in percentage of myosin and diminution of the adenosinetriphosphatase activity of the myosin; (2) fall in total protein content, and (3) absence of significant change in the average content of collagen. The changes in chemical composition correlated well with changes observed by histologic study of sections simultaneously made from the muscle samples analyzed.

Charles LeRoy Steinberg, Rochester General Hospital, Rochester, N. Y.:

Gold Toxicology in Rheumatoid Arthritis: Transparencies and charts indicate the toxicology and pharmacology of the usual gold salts employed in the treatment of active rheumatoid arthritis. Transparencies demonstrate the clinical course of exfoliative dermatitis due to gold therapy. The danger of gold salt medication is adequately described. Photomicrographs of the bone marrow in gold-treated patients are included. Early marrow eosinophilia and damage to the granulocytes are stressed. The beneficial clinical response with BAL therapy is shown in follow-up studies. Dosage, best method of administration and pharmacology of BAL are included.

EXHIBIT SYMPOSIUM ON PHYSICAL MEDICINE AND REHABILITATION

This exhibit includes physical therapy, occupational therapy and rehabilitation and is sponsored by the Baruch Committee on Physical Medicine. It is presented under the auspices of the following committee:

Frank H. Krusen, Rochester, Minn., chairman.
Winfred Overholser, Washington, D. C.
Howard A. Rusk, New York.

Howard A. Carter and Frederic T. Jung, Council on Physical Medicine, American Medical Association, Chicago:

Biophysics and Physical Medicine: The demonstration will be divided into four parts: (1) use of an oscillator and amplifier to demonstrate on the spot the effect of changing frequency of electrical currents ranging from 100 cycles per second to 200,000 per second; (2) use of a simple volt-ohmmeter to permit an onlooker to measure his own resistance: (3) mercury drop experiment to show the effects of direct current as compared with alternating current and high frequency currents in a manner analogous to the effects on muscle and nerve under electrical stimulation and (4) demonstration of inverse square law employing radiation instruments to show reduction in intensity of radiation as the distance is increased.

Julia F. Herrick and Joseph P. Engel (by invitation), Institute of Experimental Medicine, Mayo Foundation, and Section on Physical Medicine, Mayo Clinic, Rochester, Minn.:

Fundamental Studies on Microwave Diathermy and Measurement of Temperature: The demonstration will be divided into four parts: (1) demonstration of a new microwave transformer (matching animal tissue to free space); (2) demonstration of screening of microwave diathermy; (3) demonstration of a portable thermometer for measuring cutaneous temperatures, and (4) demonstration of the use of thermistors for measuring temperatures of the body.

Gordon M. Martin, Section on Physical Medicine, Mayo Clinic, Rochester, Minn.:

Therapeutic Exercises: The exhibit will demonstrate the importance of therapeutic exercise as a clinical measure for use in many conditions seen in general practice. Actual programs of exercise as applied in several common pathologic conditions will be shown. The requirements for successful employment of therapeutic exercise will be presented.

Miland E. Knapp and Frederic J. Kottke, Division of Physical Medicine, University of Minnesota School of Medicine, Minneapolis:

Physical Medicine and Rehabilitation of Fractures: The exhibit will consist of demonstrations on actual subjects of proper methods of physical treatment and rehabilitation of certain types of fractures commonly encountered in general practice.

F. A. Hellebrandt, Baruch Center on Physical Medicine, Medical College of Virginia, Richmond, and Walter S. McClellan, Saratoga Springs Commission, Saratoga Springs, N. Y.:

Spa Therapy in the United States: The value of information concerning the facilities at various accepted health resorts in the United States will be stressed, and it will be shown how health resorts serve the medical profession in the areas of general hygiene, dietary control, graduated exercise, physical therapy and diversional activities.

Winfred Overholser, St. Elizabeth's Hospital, Washington, D. C.:

Occupational Therapy in Psychiatry: The importance of occupational therapy in the management of psychiatric patients will be pointed out. Suitable apparatus and therapeutic procedures will be demonstrated. The major indications for occupational therapy will be cited.

Sedgwick Mead, Washington University School of Medicine, St. Louis:

Physical Treatment of Backache: A study of the factors contributing to "chronic low backache" will be presented. Methods of physical treatment and rehabilitation will be demonstrated. Anatomic studies, electromyographic studies and physical therapeutic procedures will be discussed.

A. B. C. Knudson, Division of Physical Medicine Rehabilitation, Veterans Administration, Washington, D. C.:

Rehabilitation of the Hard of Hearing: This exhibit will demonstrate the testing of hearing, fitting of hearing aids, speech reading, auditory training and a brief history of hearing aids from speaking trumpets to present devices. Samples of hearing aids now in use will be shown.

Henry H. Kessler, John Seeley, Donald Kerr and Earl Daniels, Kessler Institute, Newark, N. J.:

Rehabilitation of the Amputee: Charts, photographs and samples of prosthesis plus live demonstration of amputees in action are presented.

Howard A. Rusk, New York University College of Medicine, New York, and Jayne Shover (by invitation), National Society for Crippled Children and Adults, Chicago, in collaboration with the American Speech and Hearing Association:

Speech Rehabilitation: This exhibit will consist of six booths, each dealing with one phase of speech therapy: (1) stuttering, (2) articulation, (3) cleft palate, (4) cerebral palsy, (5) postlaryngectomy and (6) aphasia. In each booth a physician who specializes in the management of the particular speech defect, a speech correctionist and a speech therapist will demonstrate the appropriate methods of speech therapy on a patient suffering from the condition under consideration.

SECTION EXHIBITS

Each of the eighteen sections of the Scientific Assembly has arranged a group of exhibits dealing with the various branches of medicine.

Section on Internal Medicine

The representative to the Scientific Exhibit from the Section on Internal Medicine is Thomas C. Garrett, Sarasota, Fla. Included in this Section are the exhibit symposiums on arthritis and diabetes.

Charles A. Doan, B. K. Wiseman and Claude-Starr Wright, Ohio State University College of Medicine, Columbus, Ohio:

The Acute Leukemias: The criteria for differentiating the acute leukemic syndromes on the basis of the cell type involved, the monoblast, myeloblast and lymphoblast, are presented Evidence is beginning to accumulate which indicates a selective response to the new therapeutic agents, depending upon the principal cell type involved. The results of current specific therapy as applied to carefully differentiated types of leukemia are emphasized.

S. Zelig Sorkin and Louis J. Soffer, The Mount Sinai Hospital, New York:

Advance in the Therapy of Addison's Disease: The exhibit shows (1) the historical development of the treatment; (2) the actual methods, with dosage, etc., employed in the treatment of crisis and maintenance therapy, including pellet implantation; (3) the results obtained in terms of the prolongation in the period of survival in 50 patients treated during the past twenty years and the degree of restoration to normal activity in the patients currently under treatment. Transparencies illustrate characteristic clinical aspects of the disease.

Francis M. Rackemann, Walter S. Burrage and John W. Irwin, Massachusetts General Hospital, Boston:

Intrinsic Asthma: Charts and posters show that the cause is something which the patient carries with him. The place of intrinsic asthma in the classification of all cases is shown with certain facts and theories concerning the mechanism. An outline of treatment is given with a description of end results. Certain problems for the future are outlined.

Rita S. Finkler and George M. Cohn, Newark Beth Israel Hospital, Newark, N. J.:

Carbohydrate Metabolism in Endocrine Disturbances: In the consideration of any endocrinologic dysfunction, evaluation of the carbohydrate metabolism is of importance. In the majority, there is a concomitant disturbance of carbohydrate metabolism. The material presented in the exhibit will consider nonpancreatic disturbances of carbohydrate metabolism and their response to therapy. The following conditions are presented: (a) pituitary diseases including tumors, (b) hypothalamic disturbances, (c) thyroid diseases consisting of hypothyroid and hyperthyroid states, (d) disturbances of adrenal function and (e) disturbances of ovarian and testicular function.

Graham Asher, Laurence E. Steffen, Franklin D. Murphy and Mary Colglazier, University of Kansas School of Medicine, Kansas City, Mo.:

Effects of Mineral Deficiency on the Cardiovascular System: The exhibit shows records of experiments and clinical cases in mineral deficiency. New material on the ionizable state of the blood minerals is presented.

J. Q. Griffith, Jr., Philadelphia:

Cutaneous Capillary Microscopy in Hypertension—Relation to Prognosis: Some 2,000 persons with arterial hypertension but, initially at least, without evidence of renal failure, have been followed for four to twelve years. When first seen, studies included examination of the capillaries of the forearm through the capillary microscope, both before and after inclusion of the area in a histamine flare. Subjects are grouped according to the number of capillaries and degree of response to histamine, and comparisons made with subsequent mortality and morbidity.

Henry B. Kirkland, A. M. Lyle and Charles E. Kiessling, Prudential Insurance Company, Newark, N. J.:

Unipolar Extremity Leads in Electrocardiography: The exhibit shows the underlying theoretical principles of the augmented unipolar extremity leads, the synthesis of the standard leads and normal variations. Application of this technic is demonstrated in connection with electrocardiographic diagnosis.

Joseph T. Roberts, University of Buffalo School of Medicine and Veterans Administration Hospital, Batavia, N. Y.:

A New Blood Supply for Ischemia Hearts and the Role of Small Blood Vessels in the Heart and Nerves: The exhibit deals with original studies on blood vessels of the heart showing: (1) the discovery that the heart's blood supply may be renewed by connecting the coronary veins and the aorta; (2) changes in capillary blood supply of the heart in hypertrophy, dilatation and pain; (3) flow of blood in the thebesian vessels, and (4) the role of vasa nervorum in vasospastic or ischemic neuropathy, in peripheral vascular disease and in the mechanism of referred pain.

J. Scott Butterworth, Charles A. Poindexter, Clarence E. Peterson, Charles Rehnke and Arnold L. Wagner, New York University-Bellevue Medical Center, Post-Graduate Medical School, New York:

Visual and Auditory Teaching Aids in Cardiology: The exhibit demonstrates the multiple channel electronic stethoscope with heart tones and murmurs in a variety of conditions which have been recorded at 33 r.p.m. by a special apparatus. There is a demonstration of a specially built 10 inch lag screen kineoscope which portrays visually any type of electric current (i. e., electrocardiograms, sound tracings, vectrocardiograms). The exhibit also shows the value of using "black light" with fluorescent pigments to demonstrate charts and plastic injections of the vascular system of the heart. An apparatus for the teaching of fluoroscopy to a large group of students is included.

Myron Prinzmetal, Eliot Corday, I. C. Brill, Alvin L. Sellers, Walter Flieg and H. E. Kruger, Institute for Medical Research, Cedars of Lebanon Hospital, Los Angeles:

The Nature and Treatment of the Auricular Arrhythmias: Color cinematographs at 2,000 frames per second (130 times faster than normal) of the auricles of the intact dog's heart have been taken. Detail of auricular contraction can be visualized for the first time. Simultaneous electrocardiograms were taken employing direct auricular leads and indirect limb leads. The mechanisms of auricular flutter and auricular fibrillation can be clearly seen. It is proved that the circus movement theory of those arrhythmias is no longer tenable. Observations show that auricular extrasystole, paroxysmal auricular tachycardia, auricular flutter and auricular fibrillation are of a unitary nature and are due to impulses emitting from a single ectopic focus. The particular arrhythmia observed depends on the rate of discharge of impulses from this focus. The effect of quinidine on the contraction waves in the various auricular arrhythmias is demonstrated. The dramatic therapeutic action of digitalis on the dilated failing heart is well visualized. The various clinical applications of these studies are illustrated.

Arthur M. Master, Simon Dack, Leon Pordy, Mortimer Blumenthal, Leonard E. Field and Sidney Storch, Mount Sinai Hospital, New York:

The Two-Step Exercise Electrocardiogram — A Test for Coronary Insufficiency: Diagnosis of coronary disease is often complicated because objective evidence cannot be obtained in 25 to 50 per cent of patients. Physiologically, electrocardiographic indications of coronary insufficiency are more likely to become evident in tracings made after standard exercise than at rest. Coronary insufficiency is considered to be ruled out if two tests are negative, a standard "2-step" test and then a "double 2-step." Coronary insufficiency exists if the electrocardiogram following the "2-step" exercise is positive. Depression of the RS-T of over 0.5 mm. in any lead is a positive result; also a change from an upright T wave to an isoelectric or inverted T wave. The "2-step" test is a simple walking procedure and produces no untoward reactions.

Louis E. Siltzbach, Mount Sinai Hospital, New York, and Joseph C. Ehrlich, Lebanon Hospital, Bronx, N. Y.:

Nickerson-Kveim Skin Test for Sarcoidosis: The exhibit presents results of 120 skin tests performed on 50 patients in 3 main categories: (*a*) proved sarcoidosis, (*b*) suspected sarcoidosis and (*c*) proved nonsarcoid controls. Each test was read macroscopically and a biopsy was made, usually at the end of four weeks. Some of the tests were performed with a suspension of material from normal lymph nodes and normal spleen and the results were compared with those obtained with a suspension of sarcoid lymph nodes. Histopathologic criteria were elaborated which permit the characterization of a reaction as positive or negative. Eighty per cent of the reactions in proved sarcoidosis were positive, and in 3 patients the skin reaction was positive before a confirmatory biopsy of a natural lesion could be obtained.

Section on Surgery, General and Abdominal

The representative to the Scientific Exhibit from the Section on Surgery, General and Abdominal, is Walter G. Maddock, Chicago.

Orvar Swenson and Edward B. D. Neuhauser, Children's Medical Center, Boston:

New Concepts of Etiology and Treatment of Hirschsprung's Disease: A series of roentgenograms demonstrate a segment of bowel in the rectosigmoid and rectum which is narrow and has abnormal peristalsis and failure of relaxation. This functionally abnormal bowel is a partial obstruction and produces the dilatation and hypertrophy of the colon. Drawings are displayed of a new operative procedure to remove the functionally deficient bowel. Charts show the results of patients treated by this method. There have been no postoperative deaths, and all patients are doing well. Postoperative roentgenograms demonstrate essentially normal colons.

Arnold S. Jackson, Elwyn S. Shonyo and George P. Schwei, Jackson Clinic, Madison, Wis.:

Surgical Treatment of the Gallbladder and Common Bile Ducts: Various anomalies of the biliary arteries and ducts are presented, and methods of avoiding injury to the common duct. Surgical procedures of cholecystectomy and choledocholithotomy are depicted by a series of charts and illustrations. Results on 1,200 operations on the biliary tract are tabulated, with clinical symptoms, cholangiogram studies, findings at operation, pathologic studies and the end results.

Albert Behrend, Moses Behrend, Benjamin Greenspan, Milton Cullen and Hymen D. Stein, Jewish Hospital, Philadelphia:

Surgical Jaundice: The exhibit shows the normal and abnormal physiology of the biliary system, the etiology and differential diagnosis of surgical jaundice, the evaluation of various liver function tests in relation to surgical jaundice and the treatment of various forms of surgical jaundice.

Joseph L. Posch, Wayne University College of Medicine and the Detroit Receiving Hospital, Detroit:

Care of the Injured Hand: The exhibit consists of a brief presentation of the anatomic and physiologic considerations in primary tendon repair and nerve suture. Immediate corrective procedures and methods of clinical care are demonstrated and follow-up studies with results and complications shown.

R. W. Postlethwait and H. H. Bradshaw, Bowman Gray School of Medicine, Winston-Salem, N. C.:

Deaths Following Vagotomy: Since 1942 vagotomy has assumed increasing importance in the treatment of peptic ulcer. Fortunately, no one surgeon has had a large number of deaths after this procedure. To evaluate the possibility that unusual physiologic or pathologic changes might be factors in the mortality rate, an analysis has been made of deaths after vagotomy. Abstracts of such fatalities were obtained from surgeons throughout the country. The results of this study are presented.

John Fallon, James T. Brosnan, John Meyers and John J. Manning, Fallon Clinic, Worcester, Mass.:

Endometriosis and the General Surgeon: Endometriosis is not a problem for the gynecologist alone. It is met fairly frequently in general surgery and general practice: thus, the exhibitors see more women with endometriosis than with appendicitis. Four hundred cases are analyzed to illustrate diagnostic pitfalls, including occurrence in youth; infrequently described lesions are exhibited and a diagnostic syndrome is suggested. The syndrome consists of (*a*) cumulatively increasing period-linked pain, (*b*) in a mature woman without young children.

E. L. MacQuiddy, H. J. Bucholz and David Rhea, Omaha:

Adhesive Tape Irritations. This exhibit demonstrates the types of adhesive reactions on the human skin as well as a chart indicating the changes in p_H and changes in temperatures from beneath the tape, as well as the study of the bacterial and fungus flora from beneath adhesive tapes.

Hilger Perry Jenkins, Douglas K. Packard, Rudolph Janda and David Fox, University of Illinois College of Medicine and Woodlawn Hospital, Chicago:

Therapeutic Intestinal Intubation: The indications for intubation for relief of intestinal distention are presented by roentgenographic studies of illustrative cases. The mechanical details which are necessary for the successful use of the intestinal tubes are demonstrated with the aid of a mannikin. The various types of tubes, the hazards and the limitations of intubation are pointed out. Cases are reviewed in which the intestinal intubation was used to obtain decompression of the distended small intestine due to obstruction or paralytic ileus, thus obviating emergency surgery or permitting operation under more favorable circumstances.

Byrne M. Daly, Elwood A. Sharp, Walter H. Seegers and Thomas B. Patton, Wayne University College of Medicine, Detroit and Dearborn, Mich.:

Thrombin and Its Application in Upper Gastrointestinal Hemorrhage: The exhibit describes the clotting mechanism, the properties and action and its clinical use of thrombin, especially in regard to use in hemorrhage from bleeding from the esophagus, stomach and duodenum.

John H. Kay and Alton Ochsner, Tulane University School of Medicine, New Orleans, La.:

Newer Aspects of Blood Coagulation in Relation to Thrombosis: The interrelationship of the various single components involved in coagulation of the blood (including blood enzymes and antithrombin) is presented graphically as it is known up to this time. Certain newly recognized mechanisms of intravascular coagulation are demonstrated, and an attempt is made to evaluate the relative clinical importance of each one.

Herbert Willy Meyer and Stephen L. Gumport, Post-Graduate Medical School, New York University-Bellevue Medical Center, New York:

Cancer of the Breast: The exhibit shows historic background of the radical operation for cancer of the breast as taught by Halsted and Willy Meyer in 1894, differential diagnosis of cancer of the breast, principles, technic and results of radical operation, radiation and sterilization as part of treatment at times, and modern concept of hormone treatment in inoperable and metastatic cancer of the breast.

Stanley E. Lawton, Charles E. Fildes and Leon Seidman, University of Illinois College of Medicine and Hines Hospital, Chicago:

Cancer of the Stomach: This exhibit portrays what happened before, during and after hospitalization of 1,004 patients with cancer of the stomach—a disease known to be curable yet expected to kill over 38,000 persons during 1949. Importance of discovery of early pathologic lesions is emphasized and methods for reducing the high death rate are presented.

Clarence E. Gardner Jr. and Thomas Ray Broadbent, Duke Hospital, Durham, N. C.:

Anomalies of Intestinal Rotation: Charts, diagrams and drawings of the normal process of intestinal rotation and of abnormalities in each of the three stages of rotation as they occur in patients seen at the Duke Hospital are shown.

Darrell A. Campbell and R. Glenn Smith, Wayne County General Hospital, Eloise, Mich.:

Arteriographic Examination of the Lower Extremity: The exhibit includes (*a*) drawings illustrating a classification of arteriosclerosis obliterans, (*b*) drawings portraying the technic of the procedure and (*c*) drawings, roentgenograms and photographs correlating the arteriographic observations with the clinical status of the extremity.

J. Ross Veal, John N. Shadid and Thomas J. Dugan, Georgetown University Medical School, Washington, D. C.:

Surgery of the Sympathetic Nervous System: A demonstration of the anatomy of the sympathetic nervous system is presented, with the correlation of the normal physiology with pathologic conditions influenced by sympathectomy. The indications, the selection of cases and the type of sympathectomy required in these conditions are shown, together with the complications and end results of sympathectomy.

James Barrett Brown, L. T. Byars, Frank McDowell and Minot P. Fryer, St. Louis:

Reconstructive and Plastic Surgery of the Nose: Lesions and deformities of the nose, including neoplasms and the results of treatment, are presented, with radiation burns, distortions associated with cleft lips, gunshot wounds, traffic accidents, other congenital and acquired deformities, such as those developing late after early childhood fractures. Diagrams and photographs illustrate the use of composite free grafts of the ear for nasal reconstruction.

MALCOLM T. MACEACHERN, American College of Surgeons, Chicago:

Hospital Standardization: The exhibit demonstrates the point rating system recently instituted by the College. It provides an objective measuring stick for evaluating hospital standardization in relation to the minimum standard. The exhibit consists of charts, posters and photographs showing the various aspects of the point rating system and their method of application.

CHARLES F. BRANCH, American College of Surgeons, Chicago:

Cancer Control: An exhibit of cards and posters showing the work of the American College of Surgeons in stimulating, inspecting and standardizing cancer facilities, including cancer hospitals, cancer clinics, cancer diagnostic clinics and cancer detection centers, throughout the country. An endeavor is made to demonstrate that cancer control begins in the doctor's office.

Section on Obstetrics and Gynecology

The representative to the Scientific Exhibit from the Section on Obstetrics and Gynecology is Frederick H. Falls, Chicago.

A. R. ABARBANEL, Institute of Experimental Medicine, College of Medical Evangelists, Los Angeles, Calif.:

Effects of Various Oxytocics on Human Pregnant Uterus: Charts show effects of various oxytocics (posterior pituitary preparations, quinine, ergonovine, methyl ergonovine, methergen) on human pregnant uteri. Dangers of each are fully emphasized.

HENRY C. FALK, Beth Israel Hospital, New York:

Technic of Total Abdominal Hysterectomy: Each step in the procedure of total abdominal hysterectomy is presented by moulages, with drawings showing the intermediate steps that cannot otherwise be shown.

FREDERICK H. FALLS, University of Illinois College of Medicine, and CHARLOTTE S. HOLT, Illinois State Department of Public Health, Chicago:

Breech Presentation: Breech presentation is depicted in relation to its etiology, diagnosis, pathology and management, including fetal and maternal considerations and normal mechanism of breech.

DERYL HART and JAMES D. MOODY, Duke Hospital, Durham, N. C.:

Experimental Studies Demonstrating Controlled Variations in the Sex Ratio: On the basis of experimental studies and a statistical analysis of large numbers of human twins, the time factor between insemination and ovulation is thought to directly influence the sex of the offspring. In experimental breeding of rats the percentage of male offspring as compared to the female has been increased from a normal of 100.0 per cent to percentages varying from 149 to 255. This was accomplished by delaying insemination until varying hours after the expected time of ovulation; the greater the time interval after ovulation, the greater was the percentage of males. An analysis of over 65,000 pairs of dizygotic twins has revealed in each year's group approximately 27 per cent more like-sexed than unlike-sexed pairs. It is felt that this constant surplus, inconsistent with chance alone, results from inseminations occurring both early and late in the fertility period. The exhibit is comprised of charts and diagrams based on the results of the experimental breeding and the statistical analysis of twins.

WILLIAM C. KEETTEL, J. H. ALLEN and LUCIANO BARRERE, University Hospitals, Iowa City, Iowa:

Obstetric Penicillin Prophylaxis: Consecutive ward obstetric patients were given 600,000 units of penicillin intramuscularly at the onset of labor and 300,000 units every 24 hours thereafter until delivery, and an additional dose of 300,000 units 24 hours after the last antepartum dose. Private and part-pay patients served as controls. Maternal temperatures were taken by mouth every four hours and the morbidity standards of the American Committee on Maternal Welfare were utilized. Cervical cultures were taken usually some days before the onset of labor. Conjunctival cultures were made immediately after birth and prior to local application of prophylactic agents in control cases. Babies of mothers receiving penicillin ante partum received no ophthalmic prophylaxis. The control babies were given silver nitrate instillations in the right eye and penicillin ointment (100,000 units per gram) in the left eye. Conjunctival cultures were repeated after 24 hours in all cases.

H. E. NIEBURGS, E. R. PUND, HOKE WAMMOCK, University of Georgia School of Medicine, Augusta, Ga.:

Diagnosis of Preinvasive Carcinoma of Cervix Uteri: The material presented is based on the routine screening of the 10,000 women in whom endocervical films were made for the early detection of cancer. The differential diagnosis of preinvasive and invasive cancer of the cervix and endometrium are illustrated. Special attention is drawn to the specific cells shed from preinvasive cancer and those from invasive cancer showing their difference in morphology.

Section on Ophthalmology

The section exhibit committee of the Section on Ophthalmology consists of Georgiana D. Theobald, Oak Park, Ill., chairman; Edwin B. Dunphy, Boston, and Phillips Thygeson, San Jose, Calif.

K. W. ASCHER, W. M. SPURGEON and JEAN SCHUFF, College of Medicine, University of Cincinnati, Cincinnati:

Hydrodynamics of the Aqueous Veins: The influence of number, width and eccentricity of the cross section of the canal outlets is considered, and their bearing on the pressure inside the canal of Schlemm evaluated. Histologically, the largest outlets are located where the biomicroscopically visible aqueous veins are found. In glaucomatous eyes, the clear stream in the aqueous veins is not longer, wider or stronger than in aqueous veins of eyes with normal intraocular pressure. More pressure must be exerted on the eyeball in order to increase the aqueous flow in aqueous veins which derive from narrow outlets than in those originating from wide outlets. Spontaneous changes in the blood content of aqueous veins precede pressure changes in eyes suffering from primary simple glaucoma. In one eye, shortly after recovery from its first glaucomatous attack, an obstruction of a canal outlet has been histologically verified. After iridencleisis, aqueous veins often disappear, particularly if the eye pressure has been definitely reduced.. Both the gonioscopic and the refraction-correcting contact lenses produce characteristic changes in aqueous veins and in the canal of Schlemm.

M. W. NUGENT and KEVIN M. TUOHY, College of Medical Evangelists, Los Angeles, Calif.:

The Corneal Lens—Theory and Application: The exhibit shows the fitting technic of the Corneal Lens— a new type of plastic contact lens which has no scleral flange and requires no accessory foreign solution.

BRITTAIN F. PAYNE, JOSEPH H. KRUG and EDGAR B. BURCHELL, New York Eye and Ear Infirmary, New York:

Pathology of the Eye—New Technic for Preparations: The exhibit presents gross specimens of eyeballs divided meridionally which show various forms of pathology. Histologic sections, stained with hematoxylin and eosin, also show the same or similar disease processes.

A. L. KORNZWEIG, Home for Aged and Infirm Hebrews of New York City, New York:

Pathology of the Eye in Old Age: The eyes of inmates of the Home for Aged and Infirm Hebrews of New York City are examined periodically. Most of these patients are from 70 to 90 years old. Postmortem examinations of 120 consecutive eyes were done over a period of five years. The pathologic changes in these eyes were noted and the frequency of the occurrence of the typical pathology was classified. Many unusual findings were also listed, even though they occurred in only individual cases. Thus a comprehensive study of the eye in old age, clinically and pathologically, was obtained. The emphasis in the exhibit is on the pathology of the eye in old age. Enlarged photomicrographs of the eye, showing the typical and the unusual findings, are shown.

FREDERICK H. THEODORE, Mount Sinai Hospital, New York:

Office Bacteriology of the Eye: The purpose of this exhibit is to demonstrate the ease and feasibility of performing laboratory procedures in routine office practice, and to show their value in the diagnosis and treatment of external diseases of the eye. Special emphasis is placed on the practical aspects of slide diagnosis and culture methods. Numerous color photomicrographs of stained slide preparations obtained from illustrative cases are exhibited in specially designed viewing boxes. Bacteriologic diagnosis will be correlated with the use of newer therapeutic agents such as the antibiotics and sodium propionate.

DAN M. GORDON, The New York Hospital-Cornell Medical Center, New York:

Kodachrome Studies of the Ocular Fundus: Transparencies show a broad variety of eye diseases with emphasis on subjects of general interest.

DONALD J. LYLE and Frank H. MAYFIELD, Cincinnati:

Cerebral Angiography Related to Ophthalmology: The exhibit visualizes the cerebral vascular tree, both arterial and venous, in the normal and pathologic states by use of contrast mediums injected into the arterial system. Drawings of the visual and oculogyric systems with their blood supply are shown. Roentgenograms and diagrammatic sketches together with a brief history of the cases are used to demonstrate various types of vascular lesions affecting the visual and oculogyric systems.

PETER C. KRONFELD, ROY O. RISER and JOHN T. PARKER, University of Illinois College of Medicine, Chicago:

Glaucomatous Excavations: The exhibit shows the ophthalmoscopic appearance of the disc, recorded in stereoscopic color photographs and amateur sketches, correlated with the visual field defect in various types of glaucoma.

Section on Laryngology, Otology and Rhinology

The representative to the Scientific Exhibit from the Section on Laryngology, Otology and Rhinology is James B. Costen, St. Louis.

ARTHUR L. JUERS, RAYMOND CARHART, GEORGE E. SHAMBAUGH JR., E. L. DERLACKI and PAUL A. CAMPBELL, Northwestern University Medical School, Chicago:

Deafness and Its Management: A brief résumé is made of the present testing technics used to diagnose deafness, to measure its degree and to determine the appropriate treatment and audiologic management. A method of closing tympanic perforations is described together with a summary of results. The essential features of the Northwestern fenestration technic are briefly given, together with end results obtained by this technic. The problems and clinical entities which have been discovered as a result of the new "controlled speech" technics for testing are reviewed. Emphasis is given to phonemic regression, a special problem found frequently in presbyacusis.

SAM E. ROBERTS and FRANK S. FORMAN, Kansas City, Mo.:

Direct Laryngoscopy—Simplified Technic: The exhibit shows mechanical laryngeal head supports and a new self-retaining dual distal lighted laryngoscope. Manikins show different types of laryngeal lesions, so arranged that each visitor pass the self-retaining laryngoscope with dual distal lighting on each of the manikins. The anesthetic technic is described.

J. BROWN FARRIOR and R. A. BAGBY, Tampa Municipal Hospital, Tampa, Florida.

Ear Surgery: The exhibit consists of a series of temporal bone dissections with accompanying illustrations and legends to demonstrate the indications and technic of ear surgery. These specimens illustrate simple mastoidectomy, radical mastoidectomy, modified radical mastoidectomy, fenestration operation, facial nerve surgery, petrous apicectomies and surgical treatment of Ménière's disease. Accompanying charts describe further details.

JULIUS LEMPERT and DOROTHY WOLFF, Lempert Institute of Otology, New York:

Modern Temporal Bone Surgery: The exhibit deals with (1) the Bone-Dust-Free Lempert Fenestra Nov-Ovalis Operation for the restoration of practical hearing in clinical otosclerosis; the research and histologic observations which led to the high percentage of permanently patent fenestras obtainable today with this surgery, and the pathogenesis of otosclerosis and theory of its onset and progressive development; (2) Lempert Decompression operation for hydrops of the endolymphatic labyrinth in Ménière's disease, and the research and histology which led to its development; (3) Lempert Endaural Subcortical Mastoidotympanectomy for the cure of chronic persistent suppurative otitis media, and specially prepared cadaver specimens depicting each step in the surgery, with magnification of the surgical field.

A. C. STUTSMAN, Washington University School of Medicine, St. Louis:

Technic of Tracheotomy: The exhibit deals with the technic of tracheotomy by photographs and descriptive matter. Methods of avoiding complications are described.

Section on Pediatrics

The representative to the Scientific Exhibit from the Section on Pediatrics is Albert V. Stoesser, Minneapolis.

HAROLD W. DARGEON, Children's Tumor Registry, Memorial Hospital, New York:

Control of Cancer in Childhood: Photographs and charts illustrate the importance of cancer as a major child health problem, the familial tendency in certain varieties of childhood cancer, the variability in the natural history of certain types of child cancer and the problems of diagnosis, management and evaluation of end results.

AIMS C. MCGUINNESS and CECILIA Y. WILLARD, Children's Hospital of Philadelphia, Philadelphia:

Whooping Cough—Diagnosis, Prevention and Treatment: The exhibit shows the bacteriologic diagnosis of whooping cough, the use of the agglutinogen skin test in detection of susceptibility to whooping cough and prevention and treatment with hyperimmune human serum.

ALBERT E. SOBEL and BENJAMIN KRAMER, Jewish Hospital of Brooklyn, Brooklyn.

Studies with Aqueous Dispersions of Fat-Soluble Vitamins: Fat-soluble vitamins in oily mediums are poorly absorbed in newborn and premature infants and in diseases such as celiac syndrome, obstructive jaundice, hypothyroidism and sprue. When the vitamins are administered in aqueous dispersion they are well absorbed. This was shown for both vitamin A and E. The transfer of vitamin A to milk both in human beings and in experimental animals (rat) is far more efficient with aqueous dispersions than with oily solutions. The liver stores in normal rats are about three times as high with aqueous dispersions as with the same vitamin A in oil. Conditions for the intravenous injection of aqueous dispersions of fat-soluble vitamin were developed and tested in the rabbit with no pathologic effects.

LAURENCE J. LINCK, National Society for Crippled Children and Adults, Chicago:

A Program for the Physically Handicapped: Various phases of the rehabilitation program are shown, including physical therapy, occupational therapy, speech, hearing rehabilitation and special education.

BENJAMIN M. GASUL, EGBERT H. FELL, HANS POPPER, MAURICE LEV, WILLIAM MAVRELIS, CARL B. DAVIS JR., RAUL CASUS and HANS HARTENSTEIN, Hektoen Institute of Medical

Research and Children's Division of Cook County Hospital, and the University of Illinois College of Medicine, Chicago:

Congenital Heart in Clinical Medicine: The principles of the clinical diagnosis of congenital heart diseases are demonstrated, including roentgen ray, fluoroscopy, esophography, electrocardiography, stethography, sphygmography, angiocardiography and cardiac catheterization. The material consists of approximately 300 cases, studied intensively during the past two years. Clinically significant examples are exhibited. The physical data are correlated with the pathologic findings.

G. Carlisle Adams and Grant Taylor, Duke University School of Medicine, Durham, N. C.:

Tinea Capitis in North Carolina: The exhibit consists of photographs of lesions of tinea capitis, map with plotted incidence of tinea capitis in North Carolina, statistical breakdown of incidence in county and one city (Durham) as to race, grade, etc. Microsporum audouini and Microsporum canis are contrasted. Cultures of these organisms are included with microscopic demonstration. Treatment of the disease is discussed.

Martin M. Maliner and Sol D. Amsterdam, Brooklyn and Henry Borow, Bound Brook, N. J.:

Fluoroscopic Anatomy of Congenital Heart Defects: Models representing different congenital defects of the heart are so placed behind screens that they cast shadows similar to shadows on the fluoroscopic screen. Charts and drawings deal with the clinical differential diagnosis of the various lesions. The cardiac models will include the normal heart, patent ductus arteriosus, large patent interventricular septum, aortic coarctation, tetralogy of Fallot, patent interauricular septum, transposition of great vessels, Eisenmenger complex, tricuspid stenosis and truncus arteriosus.

Harvey Blank, Lewis L. Coriell, Gertrude Henle, Werner Henle, T. F. McNair Scott and M. Michael Sigel, The Childrens' Hospital of Philadelphia, Philadelphia:

Virus Diseases: The exhibit presents the various functions of the virus diagnostic research laboratory using for illustration observations made during two and one-half years of actual operation. 1. The laboratory diagnosis of virus infections in individual patients by: (*a*) isolation of virus; (*b*) serologic procedures; (*c*) histologic study of biopsy material for characteristic inclusion bodies (skin virus diseases), and (*d*) electron microscopic demonstration of characteristic virus particles, and in addition, characteristic clinical pictures of these virus diseases of the skin. 2. Functions concerning community health: (*a*) the analysis of outbreaks in families (herpes), schools (mumps and influenza) and industrial plants (Q fever); (*b*) the search for the source of infection; (*c*) epidemiologic surveys in order to determine the status of susceptibility in a given population, and (*d*) study of the effect of preventive measures (influenza). 3. Research toward establishment and improvement of diagnostic procedures.

Section on Experimental Medicine and Therapeutics

The representative to the Scientific Exhibit from the Section on Experimental Medicine and Therapeutics is Robert W. Wilkins, Boston.

Milton Schlachman and David Scherf, New York Medical College, New York:

Effect of Sympathicolytic Drugs on the Abnormal Electrocardiogram: The normalization of functionally inverted T waves can be produced by ergotamine preparations; therefore it is claimed that the inversion is due to sympathicotonia and that these drugs will differentiate the functional from the organic abnormal electrocardiogram. However, it was possible to normalize inverted T waves with ergotamine preparations in patients with organic heart disease and also to reproduce these results in patients who were first prepared with tetraethylammonium chloride, so that an autonomic ganglionic blockade occurred, indicating that the ergotamine preparations have a direct action on the coronary arteries or myocardium and not by virtue of their sympathicolytic property as is claimed.

James Mallory Carlisle, Westfield, N. J., and Gurth E. Carpenter, Los Angeles County Hospital, Los Angeles:

Vitamin B_{12}: Photomicrographs illustrate response of bone marrow and peripheral blood to administration of vitamin B_{12} to patients with macrocytic anemias. Charts depict hematologic and clinical progress.

Raymond W. Cunningham, A. C. Dornbush, B. M. Duggar and B. K. Harned, Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y.:

Studies on Aureomycin: A presentation of charts and posters showing the isolation of aureomycin, a new antibiotic, together with reports on the pharmacology, bacteriologic studies and other laboratory studies. Photographs show the nature of the antibiotic as well as cases which have been presented in published reports.

William J. Darby and Edgar Jones, Vanderbilt University School of Medicine, Nashville, Tenn.:

The Newer Hemopoietic Vitamins (Vitamin B_{12}, Animal Protein Factor, and Pteroylglutamates): A summary is presented of the known hematologic and other physiologic effects in the human of vitamin B_{12}, animal protein factor (APF) and the pteroylglutamates. Illustrative data are shown on patients with sprue, pernicious anemia, nutritional macrocytic anemia, pernicious anemia of pregnancy and related hematologic disorders.

Henry Dolger, The Mount Sinai Hospital, New York:

Vascular Damage in Diabetes Mellitus: Accelerated arteriosclerosis is characteristic of diabetes mellitus. Generalized degenerative changes affect the capillaries, particularly the vessels of the retina, kidney and vasa vasorum. This damage can be found in varying degrees of severity in every instance of diabetes mellitus of some duration. Within twenty-five years of onset of diabetes, 200 patients reveal retinopathy in 100 per cent, hypertension and albuminuria in 50 per cent. Neither the age of onset nor the severity of diabetes nor the control of glycosuria prevents the premature development of vascular degeneration.

Richard Kovacs, New York Polyclinic Medical School, New York:

From Amber to Radar—The Evolution of Electrotherapy and Light Therapy: Photographs, charts and diagrams show progress from the observation of simple frictional and magnetic phenomena by Thales, 600 B.C., and Gilbert, 1600 A.D., on to the period of static electricity—Abbé Nollet and Benjamin Franklin. The discoveries of the chemical and electromagnetic generation of electricity by Galvani, Volta, Faraday, enabling the pathfinding work on the physiology of muscles and nerves by Duchenne, DuBois Reymond and others are presented, as well as the discoveries of high frequency electricity by Maxwell Clark, Henry, Herz and d'Arsonval leading to medical and surgical diathermy. The new era of electronics and radar is shown; also the progress of heliotherapy from Avicenna, Aesculapius and Hippocrates to Newton, Ritter, Herschel and Kirchhoff to Finsen, Rollier, Bernhard and Hess.

David Lehr, New York Medical College, Flower and Fifth Avenue Hospitals, New York:

Sulfonamide Mixture Therapy: The exhibit illustrates (1) the relative merits and drawbacks of sulfonamide drugs available at present for use in mixtures, (2) the factors which determine the selection of appropriate drugs in optimum proportions and (3) a new concept of sulfonamide allergy. Sulfadiazine and sulfamerazine qualify for first and second place, respectively, as mixture components. Sulfathiazole, sulfapyrazine, sulfamethazine and sulfacetimide deserve attention as possible third and fourth members of a combination.

Arthur E. MacNeill, Alan Mather and William L. McLaughlin, Dartmouth Medical School, Hanover, N. H.:

A Dialyzer of Great Adaptability: A new dialyzer design is presented. The theoretical basis for its novel features is shown and its compactness, adaptability and effectiveness presented by working models, charts and diagrams. A new type of blood pump, without internal valves, is demonstrated. The potential usefulness of this device in the removal of substances from the body in renal and cardiac failure, in various intoxications and in metabolic and neoplastic diseases is suggested.

Paul C. Aebersold and Edwin A. Wiggin, Isotopes Division, United States Atomic Energy Commission, Oak Ridge, Tenn.:

Radioisotopes—What They Are, How They Are Made in the Pile and How They Are Used Medically: The exhibit consists of diagrams, charts, photographs and pile model to indicate what isotopes are, and the terminology peculiar to isotopes; how they are made in the pile, shown graphically by sketches and photographs, and how they are used medically, shown graphically by a series of sketches on diagnosis, therapy and tracer studies.

William Dameshek, Marvin L. Bloom, Louis Weisfuse and Milton Freedman, Joseph H. Pratt Diagnostic Hospital and Tufts College Medical School, Boston:

Chemotherapy of Leukemia and Leukosarcoma: Chemotherapeutic methods offer the possibility of altering the enzymatic functions of various types of proliferating white cells and thus attacking such proliferative disorders as lymphosarcoma, Hodgkin's disease, multiple myeloma and leukemia. Nitrogen mustard has been particularly successful in treatment of Hodgkin's disease, in certain cases of lymphosarcoma, and in other reticulum cell proliferations. Sk-136, a nitrogen mustard derivative, is of value in certain cases of chronic myelocytic leukemia and to lesser extent in acute monocytic leukemia. Urethane has proved of value in the treatment of chronic myelocytic leukemia, particularly in prolonging roentgen ray-induced remissions. The folic acid antagonists have proved useful in inducing remissions in about one third of the cases of acute and subacute leukemia treated. These various chemotherapeutic agents, although not curative, demonstrate not only definite therapeutic effects, but a specificity for certain proliferating white cells which gives hope for future more potent agents.

Virginia Kneeland Frantz, Sidney C. Werner and Edith H. Quimby, Presbyterian Hospital and Columbia University College of Physicians and Surgeons, New York:

Radioactive Iodine—Its Use in the Diagnosis and Treatment of Thyroid Disease: The exhibit presents an analysis of diagnosis and therapy of hyperthyroidism with radioactive iodine. A similar presentation is shown of diagnosis and therapy in thyroid cancer correlated with pathologic findings and radioautographs.

Section on Pathology and Physiology

The representative to the Scientific Exhibit from the Section on Pathology and Physiology is Alvin G. Foord, Pasadena, Calif.

Charles W. Hock, Lester L. Bowles, V. P. Sydenstricker and W. Knowlton Hall, University of Georgia School of Medicine, Augusta, Ga.:

Ocular Changes in Nutritional Deficiencies in the Rat: The vascularization and other corneal changes resulting from deficiencies of each of the essential amino acids, protein, vitamin A, riboflavin and pantothenic acid in the rat are illustrated with photographs of injected corneas. The development of capillaries and other corneal changes in methionine deficiency are illustrated with photomicrographs. The development of cataracts in deficiencies of histidine and phenylalanine in the rat is shown with photographs of eyes and of dissected lenses. The corneal and lenticular changes in the deficiencies mentioned are summarized.

Israel Davidsohn, Kurt Stern and Chiyo Kashiwagi, Mount Sinai Medical Research Foundation and Hospital and Chicago Medical School, Chicago:

Infectious Mononucleosis: Infectious mononucleosis may present serious diagnostic problems. Many of these problems can be readily solved with the help of the differential test. The material presented is based on a serologic study of over 200 patients with infectious mononucleosis. The exhibit deals with an analysis of clinical findings and of diagnostic problems, with technical aspects of the presumptive and differential tests, with their specificity and sensitivity. Summaries of experimental investigations are included on the absorption with guinea pig kidney antigen, on the rapid centrifuge technic, on the effect of diluents and of time and temperature. Pathologic and hematologic findings are presented.

Sylvan E. Moolten and Leo Vroman, St. Peter's General Hospital, New Brunswick, N. J.:

Role of Blood Platelets in Thromboembolism: A theory of thrombosis is presented stressing platelet adhesiveness and endothelial "wettability." Platelet count and adhesiveness are increased by tissue injury and by thrombocytosin found in fat tissue, and are diminished by thrombocytopen, formed in the spleen. Postoperative thrombosis may be due in part to thrombocytosin,, mobilized by trauma, in part to loss of normal endothelial nonwettability in veins by prolonged pressure or other slight injury. Clumping of adhesive platelets on a wettable endothelial surface builds up a plug (white thrombus), which arrests the flow of blood in that vascular segment. Clotting en masse of the stagnant blood (red thrombus) is accelerated by platelet breakdown in the white thrombus. The principles of endothelial nonwettability and wettability are illustrated. The glass wool filter test for platelet adhesiveness is demonstrated, also its application in preclinical detection of thrombosis and other conditions.

Silas M. Evans and Walter Zeit, Marquette University School of Medicine, Milwaukee.

Tissue Reactions to Physical Forces: The exhibit presents the ability of fibrous tissue to protect against abnormal energy releases, particularly those of motion and electricity; linear tensile strength and thermoelectric resistance studies; the ability of these energy states in pure form to produce fibrous tissue reaction; tissue reactions to galvanic current and mechanical stresses; the means whereby energy is liberated within tissues in pathologic states characterized by fibrous reaction through a mechanism known as piezoelectricity; the piezoelectric properties of fibrogenic dusts are correlated with tissue reactions and compared to the absence of piezoelectric properties and tissue reactions in nonfibrogenic dusts. Dusts never before studied and containing no silica were selected because of known piezoelectric activity and their fibrogenic properties are demonstrated. This is correlated with clinical silicosis. Tissue reactions demonstrating the electro-mechanical pattern of cholesterol correlated with the theoretic description of the pathogenesis of arteriosclerosis are demonstrated.

Sidney A. Gladstone, New York Polyclinic Hospital, New York.

Sponge Biopsy—A New Method in Cancer Diagnosis: The method consists of rubbing a suitable (gelatin) sponge over an ulcer or mucous membrane to absorb tissue juice, cells and particles of tissue. Sponge and absorbed material are fixed in formaldehyde, dehydrated, embedded in paraffin, cut, stained and examined microscopically. The exhibit includes charts describing the technic, photographs illustrating instruments and sponges and manner of applying them, charts of illustrative cases, enlarged photomicrographs of the biopsies and tables summarizing the results.

George Crile Jr., J. Beach Hazard and E. W. Rumsey, Cleveland Clinic, Cleveland:

Thyroiditis: Transparencies show gross and microscopic pathology, also clinical features of various types of thyroiditis.

Joseph M. Hill, Sol Haberman, Allen F. Reid and Kenneth P. Wittstruck, William Buchanan Blood Center, Baylor Hospital, Dallas, Texas:

Physical Chemical Studies on Rh Antibodies: Charts and graphs illustrate different orders of reactivity of antibodies and the distribution of these varieties of antibodies in the different plasma protein fractions obtained by a new fractionation technic. A working model of the fractionation apparatus is shown.

Carroll L. Birch and Louis R. Limarzi, University of Illinois College of Medicine, Chicago:

Cytologic Changes in Blood and Bone Marrow Induced by Therapy: The exhibit presents normal bone marrow cytology, bisected bones showing distribution of red and yellow marrow and sternal puncture needle in situ in sternum, and blood and bone marrow in anemic leukemic and splenomegalic states before and after therapy with liver extract, folic acid, iron, arsenic, folic acid antagonists, P^{32}, thyroid extract, high protein diet, etc.

Thomas J. White, Carroll M. Leevy, Angelo M. Gnassi and H. Preston Price, Jersey City Medical Center, Jersey City, N. J.:

Needle Biopsy of the Liver in Evaluation of Diagnosis and Therapy of Liver Disease: The exhibit shows (1) general features of needle biopsy of the liver including limitations, contraindications, indications in 400 needle biopsies, general preparations; (2) technic of needle biopsy of the liver demonstrated with moulages; (3) correlation of clinical features, function studies and histology in establishing an adequate diagnosis; (4) illustrative cases showing value of needle biopsy in diagnosis and therapeutic evaluation, and (5) needle biopsy slide demonstration.

O. J. Pollak, Quincy City Hospital, Quincy, Mass.:

Development of Atheroma—An Acute Colloidal Phenomenon: Subintimal cholesterol deposits develop in rabbits on intravenous injection of colloidal cholesterol although blood cholesterol levels do not rise to the height encountered in experimental alimentary hypercholesterolemia. Atheroma-like vascular alterations are seen in rabbits killed immediately on completion of a single intravenous injection of cholesterol. These observations lend support to the theory that atheromatosis is caused by intramuscular precipitation of coarsely dispersed colloids. They open the avenue for prevention and prophylaxis of experimental cholesterol atheromatosis.

James L. Southworth and James O. Davis, United States Marine Hospital, Baltimore:

Renal Function and Morphology in Hypertensive Vascular Disease—Preliminary Study: Renal function has been studied in hypertensive patients by clearance methods (inulin and diodrast® clearance); biopsies of the kidneys of the same patients were obtained at operation. Whereas at the extremes there is correlation between morphology and function, considerable reduction in renal blood flow and glomerular filtration rate may exist with little or no structural change. Factors other than vascular sclerosis appear to be operative in increased renal vascular resistance observed in a substantial number of cases. How adequately renal biopsy represents the status of the kidney is shown. Histologic sections are available for demonstration.

Section on Dermatology and Syphilology

The representative to the Scientific Exhibit from the Section on Dermatology and Syphilology is Francis W. Lynch, St. Paul.

Helen Ollendorff Curth, Columbia University, College of Physicians and Surgeons, New York:

Behcet's Syndrome—Aphthosis: Charts, posters and photographs describe Behcet's syndrome, which is a systemic disease characterized by recurrent attacks of uveitis (iridocyclitis) with hypopyon, oral aphthae and genital ulcerations. The three classic signs and the mode of the recurrent attacks are shown. Cases with any two of the three classic signs are considered abortive forms of the disease. The genital manifestation in women is the same as that described by Lipschütz as ulcus vulvae acutum. Associated signs such as a high degree of nonspecific cutaneous hypersensitivity, erythema nodosum and various inflammatory processes of the skin, muscles, joint, gastrointestinal tract, etc., have been observed in many patients with the syndrome. Laboratory examinations, treatment, possible causes of the disease and the differential diagnosis are discussed.

Harry M. Robinson Jr. and Fred R. McCrumb Jr., University Hospital, Baltimore:

Comparative Analysis of the Muco-Cutaneous-Ocular Syndromes: The exhibit presents a comparative analysis of a symptom complex which consists primarily of oral, genital and ocular lesions, and which is known in the literature as Behcet's disease, Reiter's disease, ectodermosis erosiva pluriorificialis and Stevens-Johnson disease. In the opinion of the exhibitors these syndromes are variants of erythema multiforme, and it is their belief that a comparative analysis of the literature supports this theory. Cases are presented which show features of all these syndromes.

E. L. Laden and D. A. Wallace, University of Chicago School of Medicine, Chicago:

Procaine Eczema—A Common Occupational Disease of Dentists: Data gathered by the American Dental Association indicate that over 1,000 dentists in the United States have chronic dermatitis of the hands, due to a large number of cases to hypersensitivity to local anesthetic. Nine dentists with proved hypersensitivity to local anesthetics were studied and a typical clinical picture is described. Sensitivity was found to be confined to procaine and anesthetics of closely related chemical configuration, and no sensitivity was present to anesthetics of different chemical configuration. A logical method of treating this condition is provided by these results.

George M. Lewis, M. Jeff Davis and George A. Waldriff, New York:

Antihistamine Therapy in Dermatology: The value of the antihistamine drugs in the treatment of urticaria is well established. It has been shown also that the local application of one of the available drugs has contributed to the treatment of some forms of idiopathic pruritus. Intensive search for further uses of the various commercial products has shown that other apparently unrelated dermatoses may be favorably affected by either the internal or external use of these drugs. An incidence of side reactions of nearly 20 per cent makes the indiscriminate use of these drugs undesirable. Epidermal sensitization is rare as shown by a comprehensive series of patch tests to eight different antihistamine drugs. It is concluded that the presently available commercial antihistamine compounds have a most useful though limited place in the treatment of skin diseases.

Claire L. Straith, Wm. G. McEvitt, Ord C. Blackledge, Morrison Beers and Richard E. Straith, Straith Clinic for Plastic Surgery, Detroit:

Plastic Surgery in Skin Lesions: The exhibit shows various skin lesions and their treatment by excision, pedicle flaps, skin grafts, etc. The importance of careful excision of even small skin lesions which enlarge or fail to heal is emphasized. A surprising number of such lesions prove to be malignant. The treatment of hairy moles, purple birth marks, rhinophymas, powder marks, tattoos, brush burns and many other lesions is considered.

Louise E. Tavs and Frederick J. Szymanski, Chicago:

Extragenital Syphilitic Chancre: Illustrations of proved extragenital syphilitic chancres in many and varied sites are shown and the incidence of extragenital syphilitic chancres in various locations on the body are presented. A survey of the diagnostic procedures applicable in this diagnosis is included, with the histopathologic features of chancre biopsy, direct and lymph node puncture dark field technics and features of serologic reactions for syphilis.

Maurice Sullivan and Marion Friedman, Medical Service, United States Marine Hospital, Baltimore:

Treatment of Condylomata Acuminata with Resin of Podophyllum: The exhibit consists of photographs portraying penile and perianal condylomata acuminata before topical application during regression, and after treatment. It attempts to emphasize the type of condylomas suitable for this therapy and the possible reactions which can occur. The similar action of podophyllotoxin and colchicine on condylomas is shown. A pictorial description of the cytologic action is presented.

Arnold A. Zimmermann and Theodore Cornbleet, University of Illinois College of Medicine, Chicago:

Development of Epidermal Pigmentation in the Negro Fetus: A graphic and microscopic demonstration of the development of dendritic melanoblasts in the fetal epidermis of the Negro is presented. All stages of the differentiation of melanin-producing cells from the third fetal month to birth are shown.

J. K. Howles, V. M. Henington and Frederick Grieshaber, Louisiana State University School of Medicine, New Orleans:

Observations on Dermatoses in the Negro: An exhibit of dermatologic phenomena in which racial characteristics are of peculiar significance. The incidence of certain dermatoses frequently considered as nonexistent in the Negro are shown. An effort is made to clear up much of the misunderstanding concerning the frequency of many dermatoses occurring in the Negro.

Section on Nervous and Mental Diseases

The representative to the Scientific Exhibit from the Section on Nervous and Mental Diseases is A. B. Baker, Minneapolis.

Lewis J. Pollock, Benjamin Boshes, Herman Chor, Isidore Finkelman, Meyer Brown, Alex J. Arieff, Joseph G. Kostrubala and Louis B. Newman, U. S. Veterans Administration Hospital, Hines, Ill.:

Injuries to Spinal Cord and Cauda Equina: The exhibit includes results of such management including treatment of bed sores, genitourinary complications, physical medicine and involvement of sympathetic nervous system.

J. M. Sanchez-Perez, University of Southern California Medical School, Los Angeles:

Kymovolchron Recorder with Starting Syringe—In Controlled Serial Roentgenography: This apparatus is to be used mainly with the automatic seriograph. It is equipped with a starting syringe and records graphically the amount of opaque material used in angiography. It also records accurately the volicity and pressure of the injection as well as the interval between the roentgen ray exposures. It is electrically connected in such a way that it starts the automatic seriograph immediately after the completion of the injection and eliminates the chance of error due to human factor.

Charles Pomerat, Jack R. Ewalt and Joseph Painter, University of Texas School of Medicine, Galveston, Texas:

Studies on Nervous Tissue Cultivated in Vitro: Spinal cord from chick embryos has been used to study the toxicity of central nervous stimulants and depressants as well as the effect of anti-organ immune serums. Studies on cells from biopsies of the human adult brain obtained during lobotomies from schizophrenic subjects are also presented.

Francis C. Grant, Hospital of the University of Pennsylvania, Philadelphia:

Neurosurgical Lesions of the Brain and Spinal Cord: The exhibit presents pictures of the operative fields seen during the exposure of neurosurgical lesions of the brain and spinal cord. Whenever possible the roentgen changes and other diagnostic features which help in localization are included. Some 20 cases of various types of tumor involving the brain and spinal cord are shown with characteristic changes frequently seen in the type of tumor exposed.

Joe R. Brown, Andrew J. Leemhuis and Louis C. Jensen, Veterans Administration Hospital, Minneapolis:

Retraining Therapy of Neurologic Disabilities: The exhibit illustrates the principles, methods of treatment and results of treatment of disabling neurologic disabilities, demonstrating how and to what extent these technics can be utilized by the general practitioner. The application of passive movement, active motion, resistance exercises, ambulation exercises, self-care activities, social and vocational training in the treatment of hemiplegia, ataxia, multiple sclerosis, parkinsonism, flaccid paralysis, and paraplegia are described. Patients are used to demonstrate the application of therapeutic technics.

William S. Collens, A. M. Rabiner, L. C. Boas, J. D. Zilinsky, N. D. Wilensky and J. J. Greenwald, Maimonides Hospital, Brooklyn:

Diabetic Neuropathy: The exhibit is concerned with a graphic presentation of the disturbance in the metabolism of the antineuritic fractions of B complex, a photographic display of muscle atrophies occurring in diabetic neuropathy, a demonstration of methods for quantitating neuropathies and a presentation of methods for effecting reversibility of this condition. The results of a study in 300 persons with diabetes is presented. A differential diagnosis of ischemic neuritis and metabolic neuropathy is stressed.

Section on Preventive and Industrial Medicine and Public Health

The representative to the Scientific Exhibit from the Section on Preventive and Industrial Medicine and Public Health is Paul A. Davis, Akron, Ohio.

Jean Spencer Felton and Lydia L. Bredig, Oak Ridge National Laboratory, Oak Ridge, Tenn.:

Mental Health in Industry: The exhibit presents the rationale and method of a counseling program now in effect at the Oak Ridge National Laboratory. The interrelation of somatic complaints and psychologic factors is shown with their effect on industrial output, employer and employee relations and the manner in which these problems are handled. The exhibit shows the type and variety of presenting complaints, the selection of those employees who present personal difficulties which interfere with work efficiency, such as those of work relations, marital problems and tension difficulties, and who are suitable for counseling. The goal of counseling is to bring to conscious awareness those patterns of behavior and attitude which interfere with functioning and to direct constructive energies toward more productive channels. The work of such a program on industrial output and work relations is presented.

Hurley L. Motley, Leonard P. Lang, Peter A. Theodos and Burgess Gordon, Barton Memorial Division, Jefferson Medical College Hospital, Philadelphia:

Pulmonary Function Impairment in Anthracosilicosis: The nature of the breathing impairment has been studied by physiologic methods in over 180 anthracite and 35 bituminous coal miners with respiratory complaints after prolonged exposure to dust (20 to 40 years). Pulmonary function impairment may be due to: (1) decreased ventilation (maximal breathing capacity and vital capacity), (2) increased residual air (emphysema), (3) decreased alveolar perfusion and (4) poor distribution (unequal alveolar aeration). Various degrees of involvement of one or more of the four factors may occur. Roentgenologic, electrocardiographic and clinical findings have been correlated with the physiologic studies. No single test was satisfactory for correctly evaluating the impairment of pulmonary function. Information is presented for improving the rationale of therapeutics in this disabling disease.

Herman N. Bundesen, William I. Fishbein and Morton B. Andelman, Chicago Health Department, Chicago:

Control of Epidemic Diarrhea of the Newborn in Chicago: Charts and graphs show the organization and administration of the Chicago Health Department unit assigned to the control of this disease, the methods of control of epidemic diarrhea of the newborn, the number of deaths of epidemic diarrhea before and after present control methods (1938) were established and the equipment and physical setup of model nurseries and formula rooms.

O. A. Sander, Milwaukee:

Siderosis—A Benign Pneumoconiosis Due to Iron Fumes and Dusts: The exhibit presents a fifteen year series of periodic chest roentgenograms of five welders, steel cutters and grinders, along with the pathologic sections from an additional case. Additional films show differential diagnosis between siderosis, silicosis, stannosis, beryllium granulomatosis and miliary tuberculosis. The roentgen findings of siderosis are characterized by discrete nodular and stippled shadows due to iron oxide deposits in the perivascular lymphatics. Such iron pigmentation is entirely inert, with no resulting fibrosis, impaired lung function or increased susceptibility to tuberculosis or other infections. It is of significance only because of its frequent misdiagnosis as silicosis.

Thomas B. McKneely, C. L. Newberry and Josephine Buchanan, Office of Vocational Rehabilitation, Washington, D. C.:

Civilian Vocational Rehabilitation—Physical Medicine Phases: Physical medicine and related therapies are shown in sequences of lighted transparencies. Other services available to the disabled through the federal-state program of vocational rehabilitation for civilians are enumerated and explained. These services include medical examinations, hospitalization, prosthesis, psychologic testing, counseling and guidance, training, vocational selection and placement and postemployment adjustment.

James A. Wheeler, Axtell Clinic, Newton, Kan.;

Comparative Graphic Study of Western Equine Virus: A comparative study of western equine virus (James A. Wheeler) and St. Louis virus (Washington University; R. J. Blattner and J. V. Cooke) is presented. The exhibit shows the reservoir as found in these two separate studies and the vector transmission of the two virus diseases. In western equine virus it was found that 50 per cent of assassin bugs from rats' nests in pastures contained virulent western equine virus; the present theory is that the young gain their wings in the spring and fly to horses in the pasture, etc. With the proper influx of seasonal mosquitoes the stage is set for an epidemic. The work was done on the St. Louis virus in order to make this a comparative study with the work done on western virus to show a particular pattern of the transmission of these two particular viruses.

Wilhelm C. Hueper, National Cancer Institute, Bethesda, Md.:

Environmental Cancer Can Be Controlled: Causes and control of environmental cancer are presented. Known causes are depicted by a diagrammatic section through the human body showing organs, seven carcinogenic factors affecting them and four routes of exposure. Varied aspects of environmental cancer include radioactive substances and roentgen rays, hydrocarbons and solar rays. "Aromatic amines in a dye plant" deals with the carcinogenic focus and the percentage of cancer in carcinogenic operation, department, plant, county and state. The control of environmental cancer includes six factors.

H. S. Van Ordstrand, Cleveland Clinic, Cleveland, Joseph M. DeNardi, Lorain, Ohio, and Morris G. Carmody, Painesville, Ohio:

Berylliosis—Acute and Chronic Manifestations of Beryllium Poisoning: A nine year study of the toxic manifestation in workers exposed to beryllium and its compounds presents the findings in over 400 cases. In this group of cases all of the known forms of beryllium poisoning have been seen, among which were 90 instances of acute reaction including dermatitis, conjunctivitis, and skin ulcer, chronic pulmonary granulomatosis and the chronic skin granulomas. The exhibit includes the history and industrial hazard of the element beryllium and its compounds. Its various clinical manifestations are demonstrated.

George Papanicolaou, Joseph Skapier, Genevieve Bader, Roland Loeb, E. Leslie, Michael Deddish, Robert Sherman and Suzanne Howe, Strang Prevention Clinic, Memorial Hospital for Cancer and Allied Diseases, New York:

Early Cancer Detection: The exhibit illustrates some of the methods used for the detection of cancer, special attention being given to the female genital tract and to the lower bowel. The cytologic technic of detecting early carcinoma of the uterus is emphasized and examples of preinvasive carcinoma found by this method are given. The statistics cover the study of 17,000 patients and 40,000 smears for the years 1947 and 1948. The results of 7,500 routine sigmoidoscopic examinations are shown and the technics of patient preparation and examination are illustrated. A research study of 150 washings of the rectosigmoid mucosa is included with color transparencies showing the normal and malignant cytology. Instruments and technic of this examination are illustrated.

Robert A. Kehoe, F. R. Dutra, J. Cholak and E. J. Largent, Kettering Laboratory, College of Medicine, University of Cincinnati, Cincinnati, Ohio:

Beryllium: Beryllium is capable of producing two forms of pulmonary disease in man, acute pneumonitis and chronic pulmonary fibrosis with formation of specific granulomas. The effects on experimental animals indicate that the substance is highly toxic in the form of soluble salts, and relatively insoluble compounds given intravenously produce malignant tumors. The exhibit illustrates all of these phenomena.

Section on Urology

The section exhibit committee of the Section on Urology consists of John H. Morrissey, New York, chairman; Roger Barnes, Los Angeles; Earl Ewert, Cambridge, Mass., and John Dees, Durham, N. C.

Henry Sangree, Leonard D. Frescoln, Park Miller, Herbert Warres and Julius Taylor, University of Pennsylvania School of Medicine and Presbyterian Hospital, Philadelphia:

Urinary Calculi—Treatment, Prevention and Diagnosis: A summary is presented of the results of 50 patients on whom a critical and exhaustive study was made as to the cause of stone formation, including data on race, sex, age and diet. There is also shown the estimation of blood serum calcium and phosphorus values, bacteriologic studies, chemical analysis of stones, roentgen ray crystallography films of stone, atomic structure, section and study of the stone under the petrographic microscopic using a cross Nichols prism, demonstration of goniometer measurements. Prevention of crystine and uric calculi is discussed, with dietary regimen.

Jan H. Tillisch, J. E. Edwards and G. J. Thompson, Mayo Clinic, Rochester, Minn.:

Pathologic Basis of Impaired Renal Function in Surgical Diseases of the Kidney: The exhibit demonstrates the pathologic basis of the impaired renal function in such surgical diseases as polycystic kidney, pyelonephrosis, renal calculi and hydronephrosis by means of models of actual cases together with roentgenograms and gross photographs and microphotographs. Pertinent clinical features in the course of the diseases, laboratory data and roentgenograms are presented. In each of the aforementioned conditions an advanced stage of the diseases with severe impairment of renal function is compared with a less severe stage of the condition with little or no apparent impairment of renal function, in order to demonstrate the pathologic cause of renal failure in the severe type.

George E. Slotkin, Millard Fillmore Hospital and University of Buffalo School of Medicine, Buffalo, N. Y.:

Synergistic Treatment of Urinary Tuberculosis by Chemotherapy: The exhibit consists of electron microscopic photographs of the action of moogrol® on the tubercle bacillus, in preparing the same for treatment by streptomycin. In vitro photographs of the action of the oil, photographs of the series of guinea pigs under treatment and evaluation will be made of the clinical results in approximately 30 cases in which combined treatment—moogrol® and streptomycin—has been used.

W. W. Scott, Willard E. Goodwin and Robert D. Sloan, James Buchanan Brady Urological Institute, Baltimore:

Nervous Control of Renal Circulation: Direct and reflex nervous control of the renal circulation of the rabbit, cat, dog and monkey is demonstrated through the medium of black and white and color photographs. These macrophotographs and microphotographs made before, during and after nerve stimulation include serial angiograms of the renal circulation made with thorotrast,® gross appearances of kidney before and after the injection of vital dyes and india ink and microscopic section of kidneys showing localization of vital dyes and india ink in the renal vessels.

Franklin Farman, John A. Arcadi, Burton K. Brock and Kenneth A. Lemon, Robert S. Fox Urological Foundation, Whittier, Calif.:

Experimental Studies and Clinical Aspects of the Renal Circulation: Morphologic studies on the renal circulation under stress with production of the shunt mechanism are presented. The effect of water diuresis, pilocarpine, magnesium sulfate and severe dehydration on the renal blood flow are demonstrated by kidneys (rabbits) injected with india ink. The clinical implications of a double circulation (cortical and medullary) are shown.

Reed M. Nesbit, William J. Butler and Wayne L. Whitaker, University Hospital, Ann Arbor, Mich.:

Production of Epithelium-Lined Tubes from Buried Strips of Intact Skin: A novel but effective technic or urethroplasty for hypospadias has recently been reported by European surgeons. The exhibit deals with a study of the principles of growth that are concerned in the procedure. A strip of intact skin is buried subcutaneously, and in twelve days it takes form into a skin-lined tube by peripheral extension of the epithelial borders of the buried strip.

R. Theodore Bergman, Roger W. Barnes, C. LeRoy Turner, School of Medicine, College of Medical Evangelists, Los Angeles:

Significant Scrotal Swellings: Transparencies demonstrate various scrotal lesions causing enlargement of scrotum.

Hamilton W. McKay, H. Haynes Baird and Kenneth M. Lynch Jr., Charlotte, N. C.:

Management of the Injured Kidney: The exhibit includes (1) a chart enumerating postulates for teaching purposes regarding the management of the injured kidney; (2) illustrated case reports from the series of cases managed according to these postulates at the Charlotte Memorial Hospital; (3) illustrated chart depicting the undesirable sequellae of the improperly managed injured kidney.

Section on Orthopedic Surgery

The representative to the Scientific Exhibit from the Section on Orthopedic Surgery is Tom Outland, Elizabethtown. Pa.

Henry W. Meyerding, Mayo Clinic, Rochester, Minn.:

Tumors of the Bone, Benign and Malignant: The exhibit consists of (*a*) short case histories, (*b*) roentgenograms, (*c*) wax reproduction of surgical specimens to show the gross pathologic appearance, (*d*) models demonstrating the surgical technic employed in excision and bone grafting and (*e*) photomicrographs showing the histopathologic appearance of the various types of tumors, with the grade of malignancy. Diagrams show anatomic distribution of the lesions and show survival in various types of tumors. It presents a practical classification of bone tumors for the clinician, surgeon, roentgenologist and pathologist.

Norman L. Higinbotham, Bradley L. Coley and Robert E. Carroll, Memorial Hospital, New York:

Sarcoma Arising in Irradiated Bone: The exhibit is based on a study at Memorial Hospital which revealed 11 histologically proved cases of osteogenic sarcoma arising in irradiated bone six to twenty-two years after irradiation therapy. The sarcoma may develop in a benign tumor that has been exposed to heavy doses of roentgen rays or in normal bone after a latent period of five to twenty years following the last therapeutic exposure.

David Bosworth, A. Della Pietra and Richard Farrell, Sea View and St. Luke's Hospitals, New York:

Streptomycin in Bone and Joint Tuberculosis: Pathology of bone and joint tuberculosis is shown, with patients cared for before streptomycin contrasted with patients after treatment with streptomycin in open and closed lesions. Cases of failure are presented, with pathologic specimens to denote reasons for failure, and charts are shown to indicate dosage, results and conclusions, as well as toxic effects and present problems involved.

E. David Weinberg, Johns Hopkins Medical School and Hospital, Baltimore:

Late Spontaneous Rupture of the Extensor Pollicis Longus Tendon Following Colles Fracture: This is a rather rare and uncommon condition which results in considerable disability of the thumb unless it is recognized and treated properly. The symptoms, signs, anatomy, pathology, methods of treatment including that of the author and the end results are described. Statistical data of the reported cases in the literature regarding the incidence, age, sex and latent period are presented. The 3 cases of the author are demonstrated by preoperative and postoperative photographs, roentgenograms, drawings and colored photographs made at the time of operation and photomicrographs of the resected tendons.

Paul Strassburger, Halford Hallock and C. Zent Garber, New York Orthopedic Hospital, New York:

Fibrous Dysplasia of Bone: Photographs and roentgenograms show the various types of cases, single lesions, multiple lesions and the complete syndrome complex of bone lesions, skin pigmentation, sexual precocity and early skeletal maturation. Photomicrographs of the pathologic changes found in the bones are presented. An analysis of 9 cases treated at the New York Orthopedic Hospital, in 7 of which surgical procedures were carried out, is shown, with results of the procedures.

Laurence Jones, Cedars of Lebanon Hospital, Los Angeles:

The Postural Symptom Complex—A Different Cause and Treatment: One common type of foot and leg imbalance, namely, inversion or inward roll of the foot and leg, produces a roentgenographic measurable anterior tilt of the pelvis. This causes central nerve tension which is recognized by the following symptoms: when general it causes general fatigue; when localized it causes varied neuralgias occurring at any or multiple levels. A fixed method of postural correction reverses serial distortion bringing demonstrable and measurable correction of faulty foot posture and this in turn brings relief of symptoms. The mechanism of production is completely described as well as the general principles that govern this method of correction. Many illustrative case histories and radiographs are presented.

David Goldberg, Springfield, Mass.:

Metacarpal Fractures—A New Instrument for the Maintenance of Position after Reduction: A new instrument has been devised for the treatment of all types of metacarpal fractures including fractures and dislocations about the base of the thumb. In this type of fracture or dislocation, which is so easy to reduce, it is difficult to maintain the corrected position. This instrument employs the use of adjustable pressure pads, which easily maintains the corrected position by the closed method. It can easily be applied and adjusted without fear of pressure sores, infection, loss of position or deformities.

Section on Gastro-Enterology and Proctology

The representatives to the Scientific Exhibit from the Section on Gastro-Enterology and Proctology are Donovan C. Browne, New Orleans, and J. P. Nesselrod, Evanston, Ill.

Leo L. Hardt, Frederick Steigmann, Sheldon E. Krasnow and Robert Schlesinger, Hektoen Institute for Medical Research of Cook County Hospital, Stritch College of Medicine of Loyola University and University of Illinois College of Medicine, Chicago:

Studies on Gastric Acidity: Charts and diagrams demonstrate the effects on gastric acidity by various substances. The antacid effect of alkali amphoteric substances, organo substances, sedatives and antispasmodics is demonstrated and discussed. The effect of vasodilator substances and of parasympathomimetic and sympathomimetic drugs is discussed. An evaluation is presented of the present day methods for studying antacid effects in the light of the daily variations in gastric acidity in both the stimulated and unstimulated stomach. The value of the various modes of antacid administration are discussed and demonstrated by gastroscopic views.

Henry A. Rafsky, Michael Weingarten, Charles I. Krieger, Bernard Newman and Kurt Stern, Lenox Hill and Beth Israel Hospitals and Brooklyn Polytechnic Institute, New York and Brooklyn:

Electrophoretic Pattern in Liver Disease: The electrophoretic pattern was studied in a group of patients suffering from hepatitis, acute and chronic stage, cirrhosis of the liver, obstructive jaundice and cancer. Liver function tests and biopsies were performed in these patients. Tracings of the electrophoretic pattern are demonstrated and photomicrographs of the pathologic findings are shown. Case reports correlate the clinical and laboratory data.

William Z. Fradkin, The Jewish Hospital of Brooklyn, Brooklyn:

Diarrheal Diseases—Diagnosis and Treatment: The exhibit consists of charts, models, specimens and instruments illustrating the diagnosis and treatment of diarrheal diseases.

M. A. Spellberg, University of Illinois School of Medicine, S. P. Bralow, Hines Veterans Hospital, Hines, Ill., and Heinrich Necheles, Michael Reese Hospital, Chicago:

Evaluation of a New Antacid in Treatment of Peptic Ulcer: The usefulness of sodium carboxy-methyl cellulose, combined with a small amount of magnesium oxide, in the treatment of peptic ulcer is demonstrated. It is bland, nonabsorbable, not affecting acid base balance. It coats the mucosa of the stomach with a protective mucoid layer, and buffers the acidity for a prolonged period of time. It aids epithelization by producing a favorable p_H, and serves as a supporting base for epithelial cell movements. It has a highly protective effect against histamine-induced ulcers in dogs, combats constipation in patients and increases the bulk and water content of the stools of rats. One hundred and twenty-nine patients treated with this preparation and 100 patients treated with an aluminum hydroxide preparation were followed for one year and compared as to clinical results and relapse rate. Emphasis is placed on the relapse rate as a valuable criterion for the treatment of peptic ulcer.

M. C. F. Lindert, Milwaukee, James H. Topp, Rockford and Michael F. Koszalka, Wood, Wis.:

Liver Biopsy in the Study of Hepatic Disease: The exhibit is an appraisal of needle biopsy of the liver as utilized in the diagnosis of hepatic disease. One section is devoted to the presentation of the various modes of approach with schematic diagrams. The indications, danger and contraindications are listed. Hepatic diseases diagnosed by means of needle punch biopsy of the liver are divided into diffuse and focal disease. Studies on prognosis, progression and physiology of liver disorders are presented. The various punch biopsy needles utilized in performing liver biopsies are shown.

J. Peerman Nesselrod, Sherman Coleman and Barry J. Anson, Northwestern University Medical School, Chicago:

Anal Ducts and Glands—Their Relation to Anal Infection: A reconstruction of anal ducts and glands in the human adult is shown, together with photomicrographs and charts illustrating the role of these structures in the pathogenesis of common anorectal inflammatory disorders such as hemorrhoids, anal fissure, anal abscess and anal fistula.

Frank S. Windholz, Robert A. Scarborough and Russell R. Klein, Stanford University School of Medicine, San Francisco:

Polyps of the Colon—Diagnosis, Roentgenology and Pathology: Roentgenographs, colored photographs, photomicrographs and translucent drawings of the roentgen appearance and pathology of polyps of the colon are presented. Emphasis is laid on their visualization by fractional method of air-contrast barium enema (unpublished) which surpasses the accuracy of roentgen demonstration of polyps in the lower sigmoid by ordinary methods of barium air-contrast enema. Frequency, morphology (roentgen ray and pathology) of appearance and location in colon, types of microscopic structure problems and signs of malignant transformation, and results of surgical removal are illustrated.

Curtice Rosser, Tom E. Smith and Lewis Waters, American Proctologic Society, Dallas, Texas:

Fifty Years of Proctology: An exhibit depicting historical highlights of the American Proctologic Society since its founding in June 1899, at the American Medical Association session of that year. Instruments, books and photographs will be shown in evolutionary fashion. Data concerning the present services of proctology to mankind and the field of medicine are included.

Section on Radiology

The representative to the Scientific Exhibit from the Section on Radiology is S. W. Donaldson, Ann Arbor, Mich.

B. P. Widmann, H. W. Ostrum and R. F. Miller, Philadelphia General Hospital, Philadelphia:

Roentgen Appearance of Gastro-Intestinal Lesions: This demonstration is a correlation of the roentgen findings in diseases of the gastrointestinal tract, illustrated with kodachrome® photographs of gross surgical and autopsy specimens. The problems of differentiating benign and malignant conditions are illustrated. Many varied roentgen deformities of gastric and duodenal ulcers with and without niche defects and with questionable niche defects are portrayed. Specimens of mucosal redundancies, granulomas and other confusing pathologic conditions of the large and small intestine are illustrated.

Anna Goldfeder, Department of Hospitals, City of New York and New York University, New York:

Anomalous Radiosensitivities of Analogous Mammary Adenocarcinomas: The two analogous mammary adenocarcinomas used in the study arose in inbred strains of mice (C3H and dba) and were both diagnosed by the pathologist as adenocarcinomas; yet they appeared to differ widely in their biologic characteristics. This was evidenced by the difference in their rate of growth, metabolic activity and radiosensitivity. In contrast to the widely accepted belief that faster growing tumors are more radiosensitive than slower growing ones, it has been shown that this concept does not necessarily hold true. An explanation of this anomaly is offered and supported by experimental data.

Eugene P. Pendergrass, Edwin L. Lame and Herman W. Ostrum, Hospital of the University of Pennsylvania, Presbyterian Hospital and Philadelphia General Hospital, Philadelphia:

Hemosiderosis of the Lung Due to Mitral Valve Disease—Cases Simulating Pneumoconiosis: The exhibit shows chest roentgenograms of 4 autopsied and 2 living patients with pulmonary hemosiderosis due to rheumatic heart disease. These simulate silicosis, miliary tuberculosis, benign pneumoconiosis and a host of other nodular, discrete, pulmonary lesions. The microscopic study on 4 cases is the first to be reported in North America.

Wendell G. Scott, Sherwood Moore, Thomas Burford and Merl J. Carson, Washington Univerity School of Medicine, St. Louis:

Angiography with the Rapidograph Utilizing 9-Inch Roll Film in Diagnosis of Congenital Heart Disease: The exhibit illustrates the rapidograph, which was developed by adapting the magazine of a Fairchild aerial camera to roentgen ray roll film that is 9½ inches wide and 77 feet long, fitting it with an electric motor and reduction gears and inserting radiographic screens through which the film passes. The roentgen exposures are made approximately every one half second and are synchronized with a self-cocking Potter-Bucky grid to gain added clarity on the films. The entire equipment is fully automatized so that the closure of one switch puts the entire equipment in operation including the roentgen ray exposure. Also illustrated is the tautograph, a machine designed for the rapid exposure of conventional roentgen ray cassettes, and which has been used for the same purposes as the rapidograph. The tautograph runs at a slower rate with an exposure every second. The indications and technics for cardiovascular angiography and aortography are described and cardiovascular angiograms of various types of congenital heart disease are shown, as well as a few examples of cerebral angiography.

George S. Sharp, Eugene W. Demaree, Robert C. Wood and Herbert F. Williams, Pasadena, Calif.:

Treatment of Oral Cancer and Tumors of the Jaws: Transparencies illustrate lesions less than 1.0 cm. in diameter on all oral surfaces and the details of treatment. Prognoses for the various regions is given, with before and after results. Early recognition of cysts and tumors of the jaws is important, and their discovery likewise demands immediate biopsy and thorough knowledge of oral pathology in order that treatment may be started promptly, with minimum deformity. On account of difficulties in differential diagnosis, the following classification will be followed: Cysts of the jaws: (1) cysts of nonodontogenic origin (developmental), (*a*) median maxillary and mandibular cysts, (*b*) globulomaxillary cysts, (*c*) incisive canal cyst; (2) cysts of odontogenic origin, (*a*) radicular cysts, (*b*) follicular cyst; (3) dermoid cyst. Cystic tumors: (1) odontogenic tumors, (*a*) odontoma, (*b*) ameloblastoma; (2) osteogenic tumors, (*a*) true central giant cell tumor. The treatment is illustrated briefly with each type of cyst and tumor.

Vincent W. Archer, George Cooper Jr., Herbert D. Hebel and John G. Kroll, University of Virginia Hospital, Charlottesville, and Christian V. Cimmino, Fredericksburg, Va.:

Lead Fiberglas® Clothing Protective Against Roentgen and Certain Atomic Fission Rays: Samples of the material are shown with protection afforded from each type of ray. Charts show the amount and character of the radiation received in usual fluoroscopy and how a coverall of lead fiberglas® will more adequately protect the fluoroscopist. Proposed decontamination suits for workers in areas contaminated by atomic fission products are outlined.

C. A. Stevenson, R. D. Moreton and E. E. Seedorf, Scott and White Clinic, Temple, Texas:

The Roentgenologic Examination of the Colon—Special Reference to Obscure Carcinomas: The exhibit shows the exact technic of the examination, emphasizing the materials used and giving a statistical report and analysis of various types of preparations for the examination; moulages in plastics and wax simulate the fluoroscopic examination and show the various pathologic changes which can be demonstrated; roentgenograms illustrate what can be expected of the examination.

Raphael Pomeranz, Harry A. Brodkin, Harrison S. Martland Jr., Newark, N. J.:

Beryllium Granulomatosis: The exhibit consists of eighty 8 by 10 transparencies in 10 by 12 frames demonstrating radiologic, gross pathologic and microscopic studies of four autopsy cases of beryllium poisoning (1936-1948). Comparative histologic studies with other pneumoconiosis, silicosis, sarcoidosis Toxicologic studies. Radiologic follow-up of clinical materal (4 cases). Results of roentgen therapy. Differential diagnosis. Summary and conclusions.

C. R. Hughes, J. R. Hannan and B. E. Mulvey, Cleveland Clinic, Cleveland:

Spinal Cord Tumors: The exhibit presents a review of 71 spinal cord tumors found in 68 patients. Clinical, laboratory and roentgen ray findings are emphasized. Fourteen selected cases are presented to emphasize case histories, roentgen ray findings and histopathology.

Section on Anesthesiology

The representative to the Scientific Exhibit from the Section on Anesthesiology is Harold F. Bishop, Valhalla, N. Y.

William Neff and Edwin Byer, Veterans Hospital, San Francisco:

Dynamics of Respiration: Changes in the dynamics of respiration incident to respiratory obstruction and the open thorax are demonstrated, using a plastic model of the thoracic cage and the tracheo-bronchial tree. Clinical examples with photographs, roentgenograms and records are shown.

John Adriani and Henry N. Westhafer, Charity Hospital and Louisiana State University, New Orleans, La.:

Operating Room Accidents—Their Management and Prevention: Complications and accidents frequently encountered in the operating room by surgeons and anesthetists are summarized. Accidents resulting from improper evaluation and preparation of patients, lack of premedication, improper choice of anesthesia, technical errors and mismanagement of anesthesia and misuse of stimulants and resuscitative measures are emphasized. Each complication or breach of technic, together with the prevention or management thereof, is depicted by photographs or drawings.

C. R. Stephen and H. M. Slater, Children's Memorial Hospital, Montreal, Quebec:

Hypobaric Pontocaine® Spinal Analgesia for Children: The exhibit shows the technic of using hypobaric pontocaine® for spinal analgesis in children. Safety of administration is stressed. Typical results are shown, stressing low dosage required.

F. Paul Ansbro and S. Potter Bartley, Brooklyn:

Continuous Brachial Plexus Block: A transparency made over a skeleton shows the anatomic situation of the bracheal plexus and its surrounding structures. The placing of the needle near the subclavian artery and other important points are brought out on the model.

James E. Eckenhoff and Margo Van N. Deming, Children's Hospital of Philadelphia and Hospital of the University of Pennsylvania, Philadelphia:

Endotracheal Anesthesia in the Newborn and Young Infant: The exhibit displays equipment used for endotracheal anesthesia in the newborn and young infants according to the technic used at the Children's Hospital of Philadelphia. There is also a description of the relative anatomic positions of the epiglottis, glottis and trachea in infants of this age group. Roentgenograms, drawings and moulages are used to indicate these relationships and to demonstrate the endotracheal tubes in situ.

E. A. Rovenstine, E. M. Papper and Charles L. Burstein, New York University College of Medicine, New York:

Therapy with Procaine and Derivatives—Cardiac Arrhythmia: Charts and drawings demonstrate the therapeutic usefulness of procaine and one of its metabolites, diethylamino-ethanol. The experimental and clinical data presented have been collected by giving these drugs intravenously to man.

F. A. Duncan Alexander, Carroll E. Kern and Thomas McD. Anderson, Surgical Service, Veterans Administration Hospital, McKinney, Texas:

The Management of Pain: This exhibit demonstrates the various steps through which patients progress in the course of their treatment for the management of major pain problems. It includes diagnostic procedures, the functioning of the "Pain Clinic," surgical and nonsurgical procedures for the definitive treatment of pain. One section is devoted to a demonstration of the site of action of systemic drugs used in the control of pain. One section is devoted to the cardinal principles of the physiology of pain.

Donald E. Hale, Cleveland Clinic, Cleveland:

Arterial Infusion: The exhibit demonstrates the apparatus used in arterial infusion. A vessel, containing the fluid to be infused, is connected by means of rubber tubing and a glass cannula or hypodermic needle to the radial artery. Pressure is exerted on the fluid by means of a blood pressure bulb, and is measured on an aneroid manometer. A second manometer indicates the effect on the arterial tension of the subject. Accompanying charts and diagrams drawn from experimental and clinical material illustrate the steps and the technic of arterial cannulization, the course of the blood injected arterially and a comparison of the results of intravenous and intra-arterial infusions.

R. F. Courtin, R. G. Bickford and A. Faulconer Jr., Mayo Clinic, Rochester, Minn.:

Electro-Encephalography During Surgical Anesthesia—A New Aid for the Control of Anesthesia: A demonstration of an apparatus and technic for recording the electroencephalogram and electrocardiogram during surgery and its practical application in the control of inhalation anesthesia is presented. The records obtained during nitrous oxide-oxygen-ether anesthesia and their correlation with other physiologic changes are shown.

David J. Graubard, New York and Milton C. Peterson, Kansas City, Mo.:

Intravenous Procaine: The exhibit presents descriptions of the capillary bed (according to Zweifach): (*a*) the normal capillary, (*b*) the origin of a stimulus in the tissues and the beginning of the reflex impulses to produce pathologic changes, (*c*) the changes within the tissues when capillary permeability and anoxia develop and (*d*) the action of procaine in breaking the reflex arc and a reestablishment of the normal circulation. A brief history on the intravenous use of procaine is included. Clinical data, including roentgenograms, are shown on cases of reflex sympathetic dystrophy, subdeltoid bursitis, osteoarthritis of the spine and destructive arthritis of the hip associated with Paget's disease.

Section on General Practice of Medicine

The representative to the Scientific Exhibit from the Section on General Practice of Medicine is M. B. Casebolt, Kansas City, Mo.

Walter I. Buchert and George H. Jones, Geisinger Memorial Hospital, Danville, Pa.:

Hematuria: Short clinical histories, roentgenograms, photographs of gross specimens and photomicrographs taken from 32 selected cases presenting hematuria as the initial or chief complaint are presented. A diagram of the urinary tract listing the causes of hematuria is shown. A pamphlet is available containing an outline of the causes of hematuria.

Emanuel E. Mandel, Edward B. Lehmann and Delmo A. Paris, United States Public Health Service, Atlanta, Ga. and Chicago:

Simple Blood Tests Available to the General Practitioner: The exhibit illustrates the facility of obtaining biochemical information required in clinical practice and demonstrates the availability of simple methods in case-finding projects. The procedures include estimation of blood creatinine and glucose, the serum flocculation test with Hayem's solution (for serum protein alterations), the icterus index and the sedimentation rate. All these methods, of which the first three have recently been devised by the authors, can be carried out on a single venous blood sample, with a minimum of laboratory experience and equipment. The practical application of the methods in screening for, and management of, nephritis, diabetes, systemic infections, disorders of the liver and biliary tract, and neoplastic diseases, are outlined and the technic demonstrated.

William P. Boger, Martin E. Gallagher, J. William Crosson and Harrison F. Flippin, Philadelphia General Hospital, Philadelphia:

Penicillin Plasma Concentrations Following Various Penicillin Preparations: A number of penicillin preparations have been developed to prolong the period during which detectable penicillin plasma concentrations can be expected after a single injection of these preparations. Data are presented concerning the plasma concentrations of penicillin that result from injection of 300,000 units of (*a*) crystalline penicillin in aqueous solution, (*b*) procaine penicillin in oil, (*c*) procaine penicillin in aqueous suspension, (*d*) crystalline sodium and procaine penicillins in combination in an aqueous medium, (*e*) procaine penicillin in aluminum monostearate and oil and (*f*) sodium penicillin in aluminum monostearate and oil. The application of the various penicillin dosage forms to therapy are indicated. Penicillin plasma concentrations resulting from the injections of 1 to 8 cc. (300,000 to 2,400,000 units) of some of these preparations at single and multiple sites are shown to last for more than ten days. Photomicrographs of the sites of injection of penicillin in (*a*) beeswax and oil and (*b*) aluminum monostearate and oil are indicated.

C. D. Van Houweling, C. R. Donham, J. S. Bengston and G. W. Jensen, American Veterinary Medical Association, Chicago:

Brucellosis in Animals—Transmission, Diagnosis and Eradication: Animal species susceptible to infection by the Brucella organisms are shown with reference to human infection. Indications of the transmission between animal species and man with graphic indications of the incidence of brucellosis in animals, diagnostic methods and recommended control procedures are presented.

Louis J. Regan, Los Angeles:

Medical Malpractice: The exhibit of charts, posters and drawings present three aspects of the subject: (1) consent to operation, (2) asking for a suit and (3) malpractice, general principles.

Willis E. Brown, Robert E. Hodges and James T. Bradbury, State University of Iowa Hospitals, Iowa City:

The Antidiuretic Effects of Narcotics: The response of human kidneys to various agents has been studied by means of clearances of para-amino-hippurate and sodium thiosulfate. Normal women (some of whom were pregnant) have been studied, and observations made of renal blood flow, glomerular filtration rate, filtration fraction, reabsorption fraction, and urine volume. Adrenalin and pitressin both produce antidiuresis, but apparently by different mechanisms. These studies indicate that both hormones decrease the effective blood flow and glomerular filtration to a similar degree. Pitressin, however, increases the filtration fraction (per cent of plasma filtered) and the reabsorption fraction (per cent of glomerular filtration reabsorbed by the tubules) to a greater extent than epinephrine. Morphine and the other narcotic drugs produce an antidiuresis by virtue of a process similar to that observed with epinephrine. Toxemias of pregnancy associated with oliguria show an alteration in kidney physiology similar to that produced in normal patients by pitressin. Morphine in these toxemic patients accentuated the deviation from normal. The clinical significance of these observations will be presented.

Chevalier L. Jackson, John F. Huber, Charles M. Norris, and Harry Morse, Temple University Hospital, Philadelphia:

The Segmental Bronchus and the Bronchopulmonary Segment: The exhibit demonstrates the applied anatomy of the bronchopulmonary segments and their corresponding segmental bronchi. It includes clinical demonstrations of the favorite localization of various lesions, such as pulmonary abscess, tuberculosis and foreign body, as well as showing the significance to the thoracic surgeon, radiologist and the bronchologist, of the segmental concept. Both prepared and fresh specimens of the bronchial tree are presented as well as models, actual size, enlarged and in miniature. The uses of such models in study and teaching are demonstrated.

Herman E. Hilleboe, Ray E. Trussell, E. R. Schlesinger, R. F. Korns, Granville W. Larimore and Madeleine

Y. PHANEUF, New York State Health Department and Albany Medical College, Albany, N. Y.:

Protecting the Newborn: A statewide program for reducing the hazards of infection during the newborn period is presented. Particular reference is made to the prevention of infection in hospital nurseries and to the role played by physicians, nurses and hospital administrators in protecting the newborn.

CLEVELAND J. WHITE and ROBERT H. HARRIS, Stritch School of Medicine of Loyola University, Chicago:

Diseases of Nails: Nail diseases due to general medical syndromes as well as many due to dermatologic dyscrasias are shown by photographs, moulages, charts and posters.

Section on Chest Diseases

The representative to the Scientific Exhibit from the Section on Chest Diseases is Edwin R. Levine, Chicago.

A. SCHOMER, H. E. BASS and R. BERKE, Veterans Administration, New York:

Coccidioidomycosis in Veterans of World War II—Pulmonary Residuals: Charts show (1) the endemic area; (2) cultural cycle of Coccidioides immitis, depicting saprophytic and parasitic phases; (3) photographs of the fungus in wet smear, tissue section, etc.; (4) diagnostic criteria with discussions of coccidioidin skin tests, serology, fungus cultures, etc.; (5) differential diagnosis of this disease and pulmonary tuberculosis, neoplastic diseases of the lung, lymphomas, other fungous diseases, lung abscess, lung cysts and sarcoidosis and (5) a series of cases demonstrating pulmonary lesions of coccidioidomycosis. These lesions in many instances have a striking resemblance to tuberculosis, and several were initially mistaken for tuberculosis.

SEYMOUR M. FARBER, MORTIMER A. BENIOFF, ALLEN K. MCGRATH JR. and MILTON ROSENTHAL, San Francisco Hospital, San Francisco:

Carcinoma of the Lung—Diagnosis by Cytologic Examination of Sputum and Bronchial Secretions: The exhibit consists of posters on (1) methods of cytologic examination, (2) diagnostic criteria in cells from sputum and (3) statistical tables on results by this technic of diagnosis.

ALLAN HURST, SIDNEY H. DRESSLER, JOHN B. GROW, HAROLD PERLMUTTER and ALBERT GUGGENHEIM, National Jewish Hospital, Denver, Colo.:

Surgical Therapy of Pulmonary Tuberculosis: Various surgical operations used in the treatment of pulmonary tuberculosis are presented. Nine specimens are shown of thoracoplasty, extrapleural pneumonolysis, phrenic, pneumothorax with adhesions, lobectomy and pneumonectomy, with roentgenograms, histories and gross and microscopic demonstrations.

KARL P. KLASSEN, GEORGE M. CURTIS and ALEXANDER J. ANLYAN, Department of Research Surgery, Ohio State University Medical School, Columbus, Ohio:

Biopsy of Diffuse Pulmonary Lesions: The exhibit illustrates the method of pulmonary biopsy. Ten illustrative cases of diffuse pulmonary lesions diagnosed by biopsy are shown, with illustrations of the surgical technic used.

ROBERT J. ANDERSON, IRA LEWIS, CARROLL PALMER and H. F. A. LONG, United States Public Health Service, Washington, D. C.:

Pulmonary Infiltrates in Student Nurses Associated with Conversion and Tuberculin Sensitivity: The exhibit presents cases in which student nurses convert from negative to positive in the tuberculin skin test while in the course of their training period; associated with the change in skin sensitivity, pulmonary lesions appear. Subsequent course of these lesions over a limited period is shown.

CHARLES P. BAILEY, ROBERT P. GLOVER and THOMAS J. O'NEILL, Hahnemann Medical College and Hospital and Episcopal Hospital, Philadelphia:

Surgery of Mitral Stenosis—Mitral Commissurotomy: Charts, drawings, photographs, roentgenograms, phonocardiograms and patients show the development of surgery of mitral stenosis, its present day concepts, its technics and its increasingly prominent position in the therapy of mitral stenosis.

HERBERT C. MAIER, FRANK BORTONE, SAMUEL COHEN and BENJAMIN P. POTTER, Medical Center—Pollak Hospital for Chest Diseases, Jersey City, N. J.:

Resection in the Treatment of Chronic Pulmonary Diseases: The exhibit emphasizes the therapeutic role that pulmonary resection is now playing in the treatment of tuberculosis, pulmonary abscess, bronchiectasis and bronchogenic carcinoma. Advances in anesthesia, surgical technic and chemotherapy have been largely responsible for this progress in thoracic surgery. The indications for resection together with operative data (complications and results) are presented.

AARON CHAVES and VERA LEITES, Bureau of Tuberculosis, New York Department of Health, New York:

Pulmonary Tuberculosis—Its Development in Persons Over 40 years of Age: Pulmonary tuberculosis, formerly considered a disease of the young, has become of increasing importance in elderly persons. In New York City of 17,454 deaths from tuberculosis in the five year period 1942-1946, 10,496, or 60 per cent, occurred in persons above 40 years of age. The exhibit consists of two groups of cases. The first group presents films of patients over 40 years of age, showing the development of pulmonary tuberculosis within a variable period after a normal chest roentgenogram had been obtained. The other group illustrates the frequently progressive course of minimal pulmonary tuberculosis in elderly persons. Increased attention of the family physician to the frequency and possible seriousness of pulmonary tuberculosis in elderly persons will lead to earlier diagnosis and treatment.

J. R. MCDONALD, L. B. WOOLNER and A. H. BULBULIAN, Mayo Clinic, Rochester, Minn.:

Tumors of the Lung—A Pathologic Study of Surgical Lesions: The exhibit is based on experience with tumors of the lung as seen in the surgical pathology laboratory. It includes data on bronchogenic carcinoma, bronchial adenoma, pulmonary adenomatosis and alveolar cell tumor, hamartoma of the lung and miscellaneous and metastatic pulmonary tumors. The gross and microscopic appearances of these tumors as seen in a large series of cases are demonstrated. The histogenesis, site of origin and rate of growth and metastasizing capacity of each group of tumors are demonstrated.

ARMY AND NAVY EXHIBITS

Exhibits from the United States Army and the United States Navy depict some of the recent advances in medicine.

Army Medicine Today

The Surgeon General, United States Army, presents six exhibits, as follows:

LIEUT. COL. JOE M. BLUMBERG, M.C., Laboratory Service, Oliver General Hospital, and EDGAR R. PUND, University of Georgia School of Medicine, Augusta, Ga.:

Exfoliative Cytology and Carcinogenesis of Preinvasive Carcinoma of Cervix: The exhibit presents various factors concerned with this condition.

LIEUT. COL. FRANK A. TODD, Veterinary Division, Office of the Surgeon General, Washington, D. C.:

Rabies: This exhibit depicts the latest methods of diagnosing, controlling and preventing the spread of rabies.

JOSEPH SMADEL, Army Medical Department Research and Graduate School, Washington, D. C.:

Choloromycetin: The exhibit presents current 1949 information on all work done on chloromycetin, covering the treatment of brucellosis, field treatment of the rickettsial diseases and typhoid, as well as the prophylaxis of cholera in mice and field trials in scrub typhus.

MAJOR BURKE M. SNOW, M.C., Army Medical Center, Washington, D. C.:

The Army Brace Research Program: The exhibit includes demonstrations of the new aluminum alloy braces developed by the Army, the principles of their construction and the physical properties of aluminum and its alloys.

GUSTAVUS H. KLINCK JR., Army Institute of Pathology, Washington, D. C., and the Committee on Thyroid Cancer, American Goiter Association:

Manifestations of Secondary Papillary Adenocarcinoma of the Thyroid: The anatomic and histologic relationships between primary and secondary papillary adenocarcinoma of the thyroid are shown by means of plastic symbols, anatomic drawings and color photomicrographs. The frequent occurrence of nontumorous-appearing histologic structures in secondary lesions is emphasized.

COL. HUGH W. MAHON, M.C., Laboratory Service, Fitzsimmons General Hospital, Denver, Colo.:

Mediastinal Cysts and Tumors: Twenty-four cases are presented illustrating dermoid cyst, solid teratomas, pericardial celomic cyst, bronchial cysts, esophageal myoma, lipoma, xanthoma, ganglioneuroma, neurofibroma, thymic cyst, Hodgkin's and lymphosarcoma.

Navy Medicine Today

The Bureau of Medicine and Surgery, United States Navy, presents the following exhibits dealing with medicine in the Navy:

COMDR. R. V. SCHULTZ (MC) U.S.N., COMDR. L. L. BEAN (MC) U.S.N. and COMDR. R. R. MYERS, (MC) U.S.N., Bureau of Medicine and Surgery, Navy Department, Washington, D. C:

Cerebral Angiography: The exhibit shows the total cases studied, causes of death, present and secondary symptoms, temperature, pulse, respiration and white blood cell count, migration and duration of pain, anesthesia incision, surgical management of acute, chronic and ruptured cases, method of handling stump and complications.

COMDR. T. A. HARRIS (MC) U.S.N. and LIEUT. J. W. BAGBY JR., (MSC) U.S.N., Bureau of Medicine and Surgery, United States Navy, Washington, D. C.:

The Practice of Psychiatry in the Navy: The exhibit shows a graphic portrayal of the professional career aspects of the practice of psychiatry in the Navy—the scope, clinical and administrative organization and mission of naval psychiatry. Specifically, the exhibit describes the opportunities offered in a career of psychiatry in the Navy in the fields of personnel selection for forensic psychiatry, mental hygiene, preventive psychiatry, intensive treatment, teaching and research. The illustrative material is drawn from the Medical Department of the Navy, psychiatry centers at Philadelphia and Mare Island and also Naval training centers, Marine Corps depots, retraining commands, disciplinary barracks and Naval hospitals. The exhibit in essence says that psychiatry can be and is a career in the Medical Department of the United States Navy.

LAURANCE W. KINSELL, SHELDON MARGEN, DAVID P. McCALLIE, LIEUT. (j.g.) M.C., U.S.N.R., and GEORGE D. MICHAELS, U. S. Naval Hospital-University of California Medical School, Oakland and San Francisco, HAROLD A. HARPER, University of San Francisco, San Francisco, HAROLD TARVER, University of California, Berkeley, and ALDEN V. HOLMES, LIEUT. (j.g.) M.C., U.S.N., U. S. Naval Hospital, Oakland:

The Role of Sulfur in the Human Economy: The sulfur-containing amino acids, methionine and cystine, are constituents of protein tissues in the human being. Because of their unique possession of sulfur as well as nitrogen, it is possible to make a more selective evaluation of their role in protein metabolism than is the case with many other amino acids. The recent availability of isotopic sulfur (S^{35}) has made available to the investigator tools of even greater precision for the evaluation of normal and abnormal protein metabolism. Data presented bring out the known roles of the sulfur-containing amino acids in human metabolism and also set forth the role of other sulfur-containing compounds of biologic importance. In addition, data are presented dealing with investigations carried out in the authors' laboratory which portray (*a*) the relationship of methionine to human liver damage in terms of rate of utilization of intravenously and orally administered DL-methionine; (*b*) the role of methionine in the therapy of liver disease (the possible toxicity of methionine for patients with liver damage is discussed) and (*c*) the use of S^{35}—labeled methionine in the evaluation of protein metabolism in normal persons, in patients with liver damage, with "idiopathic hypoproteinemia" or with certain endocrinopathies. (There is evidence that this material serves as a valuable diagnostic agent in certain obscure metabolic disturbances.)

MISCELLANEOUS EXHIBITS

MILDRED ELSON, American Physical Therapy Association, New York:

Physical Therapy—A Service for Physicians: Physical therapy is a medical service and an integral part of a total physical rehabilitation program. The exhibit presents illustrative examples of physical therapy procedures for different clinical entities that may be carried out in the physical therapy department and in the home.

DONALD G. ANDERSON, F. H. ARESTAD and E. H. LEVEROOS, Council on Medical Education and Hospitals, American Medical Association, Chicago:

Medical Education: The exhibit displays data on registration and approval of hospitals, training of interns and resident physicians, technical hospital personnel, medical education and medical licensure. Data pertaining to lists of approved medical schools, hospitals approved for internships and residencies and approved technical schools are presented.

GEORGE W. COOLEY and HOWARD O. BROWER, Council on Medical Service, American Medical Association, FRANK SMITH, Associated Medical Care Plans, and BILLEDWARD HOWLAND, Health Insurance Council, Chicago:

Voluntary Health Insurance: The exhibit features the widespread growth of all types of voluntary health insurance plans, together with the coverage in each state and the location of the medical society plans. An analysis of the population of the United States shows the part of the population not readily eligible to voluntary health insurance and the percentage of the eligible portion covered today and ten years ago. The different types of voluntary plans available to the public are presented.

AUGUSTUS THORNDIKE, Veterans Administration, Washington, D. C.:

Prosthetic and Sensory Aids Service: The exhibit displays representative types of all significant prosthetic and sensory aids now available.

CHARLES S. CAMERON, American Cancer Society, New York:

American Cancer Society—Organization and Program: Under a diagram showing the organization of the American Cancer Society, the various aspects of its program, including education, service, research and field army activities are portrayed by means of three dimensional figures and illuminated drawings. Side panels show cancer centers by state in relation to population and the distribution of funds.

Hart E. Van Riper, National Foundation for Infantile Paralysis, New York:

The Service Programs of the National Foundation for Infantile Paralysis: A detailed description is presented of the services of the National Foundation, which include scholarships and fellowships to physicians, scientists and medical ancillary groups, services to hospitals, furnishing of essential equipment and information service to physicians and nurses and physical therapists.

MOTION PICTURES

Two motion picture theaters, located in rooms adjacent to the exhibits, will be in continuous operation. Each film will be shown once daily, Monday morning to Friday noon, on a definite schedule.

Leon Gerber and Harry Abrahams, George Washington University Medical School, Washington, D. C.:

Lumbar Sympathectomy—Clinical Application and Physiologic Principles: This motion picture shows preoperative and postoperative patients, operation by two technics, anatomic study, animation strip of physiologic principles. Sound, thirty-two minutes.

Robert D. Woolsey, St. Louis University, St. Louis:

Trigeminal Neuralgia: This film shows preoperative and postoperative pictures of patients with trigeminal neuralgia. The operation of differential section of the fifth nerve, saving the ophthalmic division and motor root, is presented. Silent, thirty-four minutes.

Philip Thorek, Chicago:

Supra-Aortic Esophagogastrostomy for Carcinoma of the Midportion of the Esophagus: This picture presents a resection for carcinoma of the midportion of the esophagus. The patient, a 43 year old man, complained of marked dysphagia and starvation. Roentgenograms and esophagoscopic studies revealed an almost complete obstruction, caused by a carcinoma. The procedure shows the mobilization of the esophagus from the thoracic inlet above to its entrance into the stomach below. It is detached at its gastric end and brought over the arch of the aorta. After removal of the tumor and partial esophagectomy, a transthoracic supra-aortic end to side esophagogastrostomy is performed. Postoperative follow-up pictures of the patient, diagrammatic illustrations of the operative procedure and preoperative and postoperative roentgen studies amplify the film. Silent, thirty-eight minutes.

R. Arnold Griswold, University of Louisville School of Medicine, Louisville, Ky.:

Pericardiectomy for Chronic Cardiac Compression Due to Constricting Pericarditis: This film is a composite of several cases of constrictive pericarditis illustrating the etiology, pathologic physiology, symptomatology, surgical treatment and results of surgical treatment. Silent, thirty-two minutes.

Willis J. Potts, Childrens' Memorial Hospital, Chicago:

Surgical Division of Patent Ductus Arteriosus: Division and suture of a patent ductus arteriosus is believed preferable to ligation. The danger of hemorrhage from a slipping clamp has been a deterrent to general acceptance of division as the operation of choice. The technic of division and suture of the ductus by means of a new clamp is shown. Tiny, nontraumatic teeth on the jaws of the clamp embed themselves in the adventitia, prevent slipping and lessen greatly the danger of uncontrollable hemorrhage. Silent, twenty-five minutes.

Vernon L. Hart and Wesley H. Burnham, Minneapolis:

Congenital Dislocation of the Hip—Recognition and Treatment during Early Infancy Before Weight Bearing: The film demonstrates the clinical findings, the roentgen ray features and the treatment of congenital dislocation of the hip joint during early infancy before weight bearing. It emphasizes the fact that our concept of the pathogenesis of this congenital malformation is rapidly changing. The primary acetabular dysplasia or flat socket results in instability and incongruity of the hip joint. The femoral head may or may not displace. The displacement of the femoral head from the acetabulum may be partial (subluxation) or complete (dislocation). During early infancy congenital subluxation is common while congenital dislocation is rare. Congenital subluxation during infancy can be recognized. Treatment at this early age with the Frejka splint prevents congenital dislocation of the hip joint. During early infancy the hip joint is usually subluxated and not dislocated; it is on its way to dislocation. Dislocation can be prevented. Silent, thirty-three minutes.

Lyon K. Loomis, Louisiana State University School of Medicine, New Orleans:

Stenosing Tenosynovitis at Radial Styloid Process (de Quervain's Disease): The film shows anatomy, pathology, clinical findings and surgical treatment of a disease which is frequently confused with arthritis, periostitis, neuritis, sprain and other conditions. Silent, twenty minutes.

H. E. Nieburgs, Edgar R. Pund and Hoke Wammock, University of Georgia, School of Medicine, Augusta, Ga.:

Diagnosis of Cancer by Exfoliative Cytology: The motion picture demonstrates the following: (1) method of taking vaginal and endocervical smears; (2) normal cytologic changes during the menstrual cycle, pregnancy and the menopause; (3) the diagnosis of preinvasive and invasive cancer of the cervix uteri, illustrating the morphology between these two types of cervical cancer; (4) diagnosis of endometrial cancer; (5) sources of error in the cytologic interpretation and, (6) the diagnosis of cancer from other body fluids such as sputum, bronchial aspiration, gastric lavage and prostate. Silent, twenty minutes.

American Cancer Society, New York, and National Cancer Institute, United States Public Health Service, Bethesda, Md.:

Cancer—The Problem of Early Diagnosis: The film is designed to show that the family physician offers the only immediate hope of reducing the annual toll of more than 180,000 deaths from cancer. The picture begins with Dr. Theodor Billroth's famous operation for gastric cancer in 1881. It portrays graphically the difference made today by early diagnosis of cancer of the stomach, breast, rectum, cervix and lung. The camera shows family doctors making examinations and surgeons performing operations. Animation is used to portray what is happening inside the body of the cancer patient. A series of charts dramatizes the reduced mortality rate when diagnosis and treatment are early instead of late. Sound, thirty minutes.

The State of California, Department of Public Health and the California Medical Association Cancer Commission:

Examination of the Breast for Early Cancer: The motion picture illustrates briefly the various methods for examination of the female breast to determine the presence of early cancer. The authors stress the essentials of a proper examination, namely, gaining the patient's confidence, good lighting, careful inspection, palpation and transillumination. Sound, twenty minutes.

Arthur C. Corcoran, Don Carlos Hines and Irvine H. Page, Lilly Laboratory for Clinical Research, Indianapolis:

Kidney Function in Disease: This motion picture is a sequel to the film "Kidney Function in Health." Building on this foundation, it begins with a discussion of the renal pressor system and then proceeds to show the changes in structure and function of the kidneys in hypertension, glomerulonephritis, pyelonephritis, renal calculus, crush syndrome and certain other conditions. The metabolism of water, electrolytes, acids and bases is discussed so far as it pertains to renal function. The film concludes with a concrete discussion of the treatment of diseases involving the kidneys, in the light of their underlying pathologic anatomy and physiology. Sound, forty-six minutes.

Earl C. Elkins, Mayo Clinic, Rochester, Minn.:

Physical Rehabilitation of Paraplegics: The film shows the procedures used in the physical rehabilitation of the paraplegic patient. Activities of the patients are presented from the earliest activities used following the period in which they have been bedridden, to the time when they become fully independent physically. These include muscle strengthening exercises, exercises necessary to develop the patients for use of crutches, training in getting in and out of chairs or wheel chairs and to and from crutches, crutch gaits, climbing stairs and other activities to develop physical independence in the patient. Fourteen different patients are presented in the various stages of physical rehabilitation. Silent, thirty-four minutes.

Byron E. Hall, Henry W. Woltman and Frank H. Krusen, Mayo Clinic, Rochester, Minn.:

Vitamin B_{12} and Coordinating Exercises for Combined Degeneration of the Spinal Cord: Good results have been obtained in treating combined degeneration of the spinal cord in pernicious anemia by employing adequate administration of vitamin B_{12} to go with proper instruction in coordinating exercises. This film illustrates the coordinating exercises and shows a series of patients before, during and after such treatment. Silent, forty minutes.

Carroll L. Birch, Louis R. Limarzi, Robert Keeton and Otto Kampmeier, University of Illinois College of Medicine, Chicago:

Animated Hematology—Bone Marrow: The film depicts embryology of bone marrow from kodachrome® microphotographs of human material. It shows technic of bone marrow aspiration, normal marrow distribution and cytology. Pathologic changes are described in bone marrow in pernicious and other anemias; leukemias; thrombopenic purpura; bacterial infection; protozoal infection (malaria, etc.); fungous infections (histoplasmosis); infiltrations (malignant tumor cells, etc.); Gauchers's disease; multiple myeloma and some systemic conditions. The summary evaluates bone marrow findings regarding diagnosis, prognosis and treatment. Silent, forty-five minutes.

Conrad Berens, Arthur B. Duel Jr. and William Ryan, Ophthalmological Foundation, Inc., New York:

Cycloelectrolysis for Glaucoma: Indications for the procedure is given, as well as surgical technic and postoperative care. Silent, eighteen minutes.

Harry E. Bacon, Temple University School of Medicine, Philadelphia:

The Technic of Abdominoperineal Proctosigmoidectomy without Colostomy and with Preservation of the Sphincter Musculature: The film shows the technic of abdominoperineal proctosigmoidectomy without colostomy and with preservation of the sphincter musculature, based on 401 cases. Silent, thirty minutes.

Harry E. Bacon, Temple University School of Medicine, Philadelphia:

Transcolonic Removal of Benign Adenomatous Polyps: The film shows the technic of transcolonic removal of benign adenomatous polyps based on 56 cases. Silent, twenty minutes.

American Medical Association, in cooperation with the Committee on Technical Advisers of the United States Army, United States Public Health Service and the American Red Cross:

They Also Serve: This film stresses the physician's responsibility in the event of a major disaster. It emphasizes the importance of organizing and supporting local emergency committees and points out the importance of thorough planning so that physicians may be ready for any emergency. Several activities which may come into play during a major disaster are illustrated. Sound, twenty minutes.

Chevalier L. Jackson, John F. Huber and Charles M. Norris, Temple University School of Medicine, Philadelphia:

Applied Anatomy of the Bronchi and Lungs: This film shows, by means of animated drawings in color, the lobar and segmental subdivision of the lungs according to bronchial distribution. By means of color key it shows the relationship between the bronchopulmonary segment and its corresponding segmental bronchus. In the second part of the film, with the bronchial tree and lungs in the inverted position, the color key method is used to show the relation of the bronchial orifice, as seen by the bronchoscopist, to the segmental bronchus and bronchopulmonary segment. It is the purpose of this film to show the relative size and importance of the different segments, as well as their relative position in the lung. This demonstration is of interest and importance to the thoracic surgeon, the roentgenologist and the bronchologist. Silent, fourteen minutes.

W. D. Seybold, Mayo Clinic, Rochester, Minn.:

Congenital Atresia of the Esophagus with Tracheoesophageal Fistula—Surgical Repair: The common varieties are shown by diagram. Essential points in diagnosis are made, and the surgical repair showing closure of the tracheoesophageal fistula and primary end to end esophageal anastomosis through a right posterior extrapleural approach is shown. The most important function of postoperative care, including the performance of a Witzel gastrostomy for temporary feeding purposes, is shown. Silent, eighteen minutes.

Stuart W. Harrington, Mayo Clinic, Rochester, Minn.:

Pulsion Diverticulum of Lower Esophagus—Transpleural One Stage Diverticulectomy: The motion picture shows previous history, essential laboratory and roentgenologic findings of patient on admission, operative procedure of transpleural one stage diverticulectomy and postoperative roentgenologic findings and result. Silent, fifteen minutes.

Julius Lempert, Lempert Institute of Otology, New York:

Bone-Dust-Free Lempert Fenestra Nov-Ovalis: The film depicts a new technic of creating a fenestra in the vestibule of the labyrinth for the restoration of practical hearing in clinical otosclerosis without creating bone dust or bone chips. The problem of removing bone particles from the fenestra rim and perilymphatic space which would stimulate osteogenetic closure of the fenestra is thus disposed of. Silent, fifteen minutes.

Myron Prinzmetal, Eliot Corday, Alvin L. Sellers, Walter Flieg and H. E. Kruger, Institute for Medical Research, Cedars of Lebanon Hospital, Los Angeles:

The Nature and Treatment of the Auricular Arrhythmias: Color cinematographs at 2,000 frames per second (130 times faster than normal) of the auricles of the intact dog's heart have been taken. Detail of auricular contraction can be visualized for the first time. Simultaneous electrocardiograms were taken employing direct auricular leads and indirect limb leads. The mechanisms of auricular flutter and auricular fibrillation can be clearly seen. It is proved that the circus movement theory of these arrhythmias is no longer tenable. Auricular extrasystole, paroxysmal auricular tachycardia, auricular flutter and auricular fibrillation are of a unitary nature and are due to impulses emitting from a single ectopic focus. The particular arrhythmia observed depends on the rate of discharge of impulses from this focus. The effect of quinidine on the contraction waves in the various auricular arrhythmias is clearly demonstrated. The dramatic therapeutic action of digitalis on the dilated failing heart is well visualized and adds to knowledge of the action of this drug. The various clinical applications of these studies are illustrated. Silent, thirty minutes.

The TECHNICAL Exposition

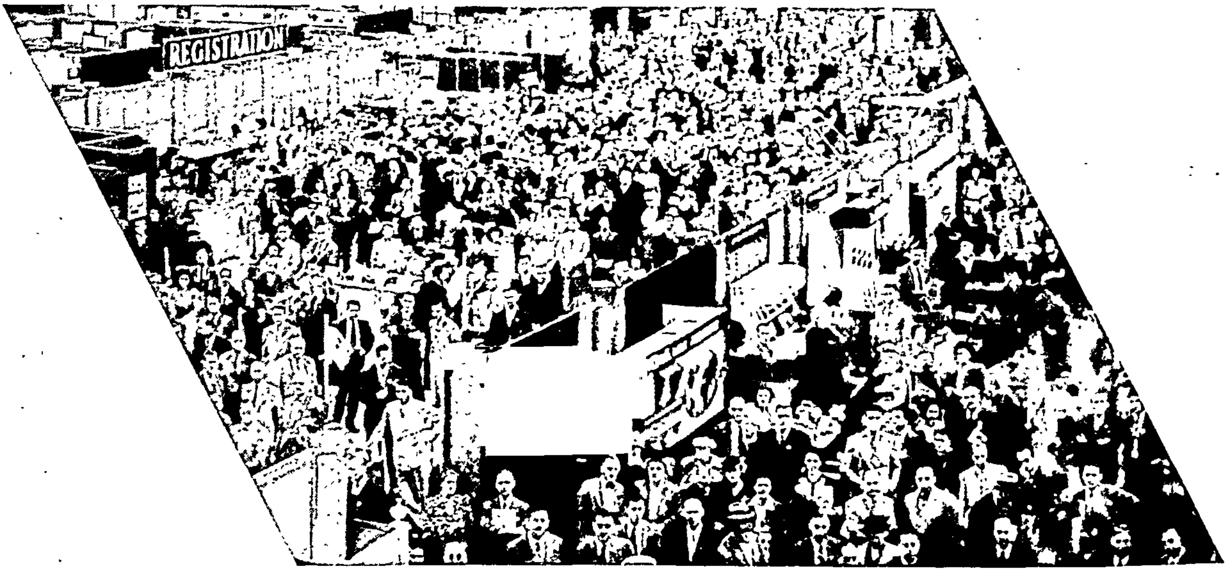
Atlantic City has been the "stage" for many a successful A. M. A. Session. On June 6 we shall be there again with what will probably be the largest and most representative group of medical exhibits ever assembled.

Whether you are a general practitioner, specialist, resident or intern, you will find much of immediate interest: latest advances of medical research—radioactive isotopes, the newer antibiotics . . . aureomycin, dihydrostreptomycin, chloramphenicol . . . the new rapid test for serodiagnosis of syphilis with cardiolipin, cytological diagnosis of cancer, etc.; surprising innovations in apparatus and instruments; the last word in books by leading medical publishers; new methods of teaching by colored television and films—all will be there for you to make a quick practical check on what American manufacturers have contributed to scientific medicine to help keep your professional activities "abreast-of-the-times."

Many physicians have remarked that a few days spent at an A. M. A. Session is equivalent to a long period of post-graduate study and does much to put the innovations presented into practical application in day-to-day patient contact.

The Technical Exhibition will open at 8:30 each morning, beginning June 6, and remain open until 6:00 each evening, except on Friday, June 10, when the Exhibition ends at noon. Every moment you can spend at the Convention Hall will be well worth your while. So come early, stay late, and make the most of this wonderful show that has been assembled for your benefit and pleasure.

Thos. R. Gardiner,
Business Manager and Director of Technical Exhibits



BRIEF DESCRIPTIONS GIVING A PREVIEW OF MOST OF THE TECHNICAL EXHIBITS:

ABBOTT LABORATORIES, North Chicago, Ill. (Booths L-18, L-20, M-17 and M-19): An exhibit based on research with radioactive isotopes and their application to experimental and clinical medicine will be sponsored by Abbott Laboratories. Abbott is currently producing and distributing radioactive pharmaceuticals to numerous research and medical insituations. Also exhibited will be a number of leading Abbott specialties.

ACOUSTICON INTERNATIONAL, New York, N. Y. (Booth J-30), will feature the tiny, palm-size radio attachment that transforms a hearing aid into a "personal" radio! Employing specially developed midget vacuum tubes and radar-type tuning—this Super-Radion attachment enables a hard of hearing person to enjoy radio with "custom quality" for his own particular kind of hearing loss. Performance of Super-Radion is equal to a standard five tube radio and there is sufficient power to bring reception anywhere—at home, traveling, etc.—despite the extremely small size of the attachment.

ALLERGY-FREE PRODUCTS, Brooklyn, N. Y. (Booth I-32) specializing in products for the allergic patient, will feature Goodyear's Airfoam pillows; mattresses; beds; furniture covered with Protecto-Dust Encasings for double protection; a 100% all wool blanket without any fuzz or dye; and a window air purifier.

W. D. ALLISON CO., Indianapolis, Ind. (Booth G-9): Of practical interest to all physicians will be the new exhibit of Steel-Furniture offered for the first time by Allison. Included will be: Hanes Rectal Table, with the Hand Tilt Mechanism; Windsor Examining Room Suite, with the Sponge Rubber top covered with Duran; Consultation Room Group to match the Windsor Suite; and Allison Pediatric Table with new features, new design.

ALMAY, INC., New York, N. Y. (Booth M-24), will exhibit its complete line of hypo-allergenic cosmetics. These cosmetically elegant products are available either perfumed or unscented. Lipsticks are made without indelible dye and on special formula. Available to physicians will be, Raw Material Testing Sets for determining specific sensitizers and descriptive literature.

A. S. ALOE CO., St. Louis, Mo. (Booths C-21, C-23), will feature the latest in surgical instruments and equipment for your office as well as a complete and modern line of Physio-Therapy and X-ray equipment. Your visit will be welcomed.

AMERICAN CAN COMPANY, New York, N. Y. (Booth H-17), will present information concerning those aspects of commercially canned foods which are of particular interest to the medical profession. Physicians may register at this booth for a free copy of the revised edition of The Canned Food Reference Manual, a publication prepared and edited by American Can Company's Research staff.

AMERICAN CYSTOSCOPE MAKERS, INC., New York, N. Y. (Booths E-22, E-24), will show a new telescopic esophagoscope, bronchoscope, operating gastroscope, and photographic endoscopic instruments. Their complete catheter, diagnostic, operating and electro medical equipment will also be displayed.

AMERICAN HOSPITAL SUPPLY CORP., Evanston, Ill. (Booth K-10), will exhibit Baxter Intravenous Solutions and Blood Transfusion Equipment with all necessary accessories; Human Blood Grouping and Typing Serums; Tomac Oral Protein Supplement, a remarkably palatable, non-hydrolyzed, highly efficient powdered Protein with 70% protein and low carbohydrate content—and fully accepted by the Council on Foods and Nutrition of the A.M.A.; the Vasoscillator, Sanders Oscillating bed for the treatment of peripheral vascular ailments; and a selected group of Tomac Products.

AMERICAN OPTICAL CO., Southbridge, Mass. (Booths C-4, C-6, D-3, D-5): New Items of interest here will be the M. C. Delineascope, Tillyer Trial Frame, Tillyer Cataract Lens Series, and Stone-Jardon Implant with lateral edge. Displayed also, along with other Spencer Microscopes, will be the AO Spencer Phase Microscope. Other items include absorptive Prescription Lenses, Friedenwald Ophthalmoscope, Giant Retinoscope and Spencer H. B. Meter. AO Representatives will demonstrate and explain.

AMERICAN PHYSICIANS ART ASSN. (Right of Main Entrance): Calling All Physician-Artists! If you plan to exhibit your art works at the American Physicians Art Association Exhibition, write by airmail immediately for full information to Francis H. Redewill, M.D., Secretary, P.O. Box 31, Atlantic City, N. J. Whether you are a Member of A.P.A.A. or not, you owe it to yourself to visit the Art Show sponsored through the courtesy of Mead Johnson & Co.

AMERICAN STERILIZER COMPANY, Erie, Pa. (Booth E-9), will demonstrate the American 1075 Operating Table and DMC track mounted Surgical Light with a live model under actual clinical conditions. The new Davidson-Comper Frame will be introduced. Highlighting this exhibit will be Accommodation of the Prone Position with the entire abdominal-thoracic area in unobstructed suspension on a general operating table. The Alternating Pressure Mattress for control of bed sores on patients bedridden for prolonged periods will be shown for the first time in actual operation for investigation by the profession.

THE AMERICAN SURGICAL TRADE ASSOCIATION, Chicago, Ill. (Booth E-20), will display a large map of the United States showing the location of the 214 surgical dealer members of the Association. It will also distribute a booklet entitled "What's in an Emblem?" which lists the dealer members, gives a brief history of the Association, and outlines the services rendered by members to physicians and hospitals.

AMES COMPANY, INC., Elkhart, Ind. (Booth F-17): Ames Company representatives will be glad to discuss Decholin tablets and Decholin Sodium ampuls, the standard hydrocholeretic agents for the treatment of biliary tract diseases. Another interesting feature will be a demonstration of Clinitest and Hematest—simplified tests for the detection of urine-sugar and occult blood.

ANSCO, Binghamton, N. Y. (Booth L-29), will feature outstanding and interesting radiographs made with both screen and non-screen techniques. A display of Ansco Color transparencies of medical subjects showing the natural and true color reproduction possible with this film and of Ansco Color Printons of medical and other subjects.

APOLLO MANUFACTURING CO., Aurora, Ill. (Booth EP-1)

APPLETON-CENTURY-CROFTS, INC., New York, N. Y. (Booth A-15): Important new books and revisions will be featured by Appleton-Century-Crofts, Inc. Of major importance is the new Operative Technic edited by Warren H. Cole and written by 57 American authorities; the new edition of Wallace Yater's Fundamentals of Internal Medicine; and the recent revisions of Zinsser's Textbook of Bacteriology; Thomson's Nose and Throat; Morrison's Ear, Nose and Throat; and Maingot's Abdominal Operations.

THE ARMOUR LABORATORIES, Chicago, Ill. (Booths C-9, C-11, C-13), extends a cordial invitation to members of the American Medical Association to visit their display of Medical Products of Animal Origin. The following book is available to members of the Assembly: "Function and Malfunction of the Biliary System"—also, descriptive literature on Armour preparations.

THE GORDON ARMSTRONG CO. INC., Cleveland, Ohio (Booth E-11): The Armstrong X-4 Portable Baby Incubator on exhibit here will show the new Thermometer Guard and the Accessory Cabinet which are now available. Close to 8,000 of these Incubators are now in use all over the world. Representatives at the booth will be pleased to answer questions and to offer help to users of the Incubator.

ASSOCIATED MEDICAL CARE PLANS, Chicago, Ill. (Booth G-25), offer an educational and informative exhibit showing the contribution made by the physicians of the United States and Canada in developing and supporting the Blue Cross and Blue Shield Plans, together with a brief summary of the importance of these Plans in making prepaid health available to the public on a prepayment basis.

AYERST, McKENNA & HARRISON, LTD., New York, N. Y. (Booths L-21, L-23): "Premarin" (Estrogenic Substances-water-soluble)—a highly effective and well-tolerated preparation of naturally-occurring, orally-active, conjugated estrogens (equine) will be the focal point of attention here. The potency of "Premarin," expressed in terms of its principal estrogen, sodium estrone sulfate, provides convenience of administration and flexibility of dosage. Four potencies of "Premarin" Tablets and the liquid form will be presented.

C. R. BARD, INC., Summit, N. J. (Booth F-22): In addition to their complete display of Catheters and Drains, C. R. Bard, Inc., will exhibit many items of special interest to doctors other than those specializing in Urology. Among these are Catheters for use in Continuous Spinal and Caudal Analgesia, a new Woven Venous Cannula, and a Double Lumened Tube for Intestinal Intubation specially designed to facilitate introduction and provide maximum drainage. Factory representatives will be in attendance to discuss the development of new items.

BAUER & BLACK, Chicago, Ill. (Booths I-30, J-28), will utilize two separate exhibits. In one, new put-ups of Curity Cotton Balls, gauze sponges, and unique new Kerlix Rolls, all designed for the doctor's office use, will be seen. Also featured, at this exhibit, will be the brand new Rondic Ball type sponge. The other booth will show the popular line of B&B Elastic Goods, including Tensor Elastic Bandage.

W. A. BAUM COMPANY, INC., New York, N. Y. (Booth M-12): The big "news" here will be the Baumanometer Air-Lok Cuff. The simplicity and unique effectiveness of this new bloodpressure cuff is attained by making the air pressure in the rubber bag do the work. No metal part of any kind is employed. The new Phlebaumanometer (Burch-Winsor) for determining the bloodpressure in large and small veins will also be displayed as well as all of the current models of the Lifetime Baumanometer.

BAUSCH & LOMB OPTICAL CO., Rochester, N. Y. (Booths F-6, F-8): A number of important new scientific optical instruments will merit your attention at the Bausch & Lomb exhibit. Included will be the "L" camera for photomicrography; the "E" research microscope with low position, fine adjustments; Flourescence accessories for quick, positive T. B. diagnosis; Phase contrast accessories for examining unstained specimens; also the latest centralized ophthalmic equipment and instruments for refraction, examination, and diagnosis.

RUDOLPH BEAVER, Waltham, Mass. (Booth L-5), will feature a demonstration of the Beaver Knife. Particularly interesting is its non-corrosive stainless steel handle and the versatile interchangeable variety of 13 different blade shapes. This strong, sturdy set is instantly adaptable for superficial cutting or deep surgery and dissection.

BECK-LEE CORPORATION, Chicago, Ill. (Booth E-5), will present the Model ERA Electrocardiograph with the Record Automatic Camera. The Model ERA combines the proven accuracy of the Einthoven quartz string galvanometer and its higher frequency response with the convenience of immediately available cardiograms. The RA Camera delivers a permanently developed electrocardiogram seconds after the heart current has been recorded on the moving photographic paper.

BECTON, DICKINSON & COMPANY, Rutherford, N. J. (Booth D-4), will have their complete diagnostic line ready for inspection at their exhibit. A special feature will be the demonstration of the new B-D Vacutainer Culture Bottle which has gained tremendous popularity in the last few months.

BEDFORD SURGICAL COMPANY, INC., Brooklyn, N. Y. (Booth K-7) will display improved, "approved," and time-tested physicians' office equipment of modern design plus a token cross-section selection of standard brand Council-accepted supplies and equipment. Bedford of service to the medical professional here and abroad for many years will be glad to help you.

J. BEEBER CO., INC., New York, N. Y. (Booths G-3, G-5) will be demonstrating the new model ERA Beck Lee Electrocardiograph, which develops, dries and fixes instantaneously; the new model Mattern SRF with horizontal and vertical fluoroscopy; Hamilton steel and wood furniture; a new Federal Communication Commission approved short wave machine; and the new McKesson BMR.

BEECH-NUT PACKING COMPANY, Canajoharie, N. Y. (Booth L-25) will feature its Strained and Junior Foods which together with all advertising related to such foods, have been accepted by the Council of Foods and Nutrition of the American Medical Association. Nutritionists will be on hand to discuss all inquiries regarding the products as well as any phase of the Company's nutrition program in which you might be interested.

BELL & HOWELL, Chicago, Ill. (Booth I-27) will show their complete line of 8mm and 16mm cameras and projectors, 2x2 slide projectors, editing equipment, sound motion picture projectors, and accessories. The display will feature a demonstration of their new 35mm Foton still camera with the new "T" stop lenses, built in range finder, self-cocking shutter, and automatic film transport.

MARJORIE PEPER BELL, St. Louis, Mo. (West Lobby): An exhibit of particular interest will be that of Creme-Lacquer, the fascinating hairdressing, manufactured and distributed by Majorie Peper Bell. It contains no alcohol, no resin, no rosin . . . is non-stiffening, non-oily, non-sticky, and non-flaking after applying to natural or dyed hair. To your patient—or to anyone in professional, social or business life—the psychological value of boosting morale with assured confidence that his or her hair is attractively groomed with natural looking, shining, youthful highlights is immeasurable. Creme-Lacquer will be displayed in a most artistic manner in two lighted shadow boxes, framed in petal pink and gold.

BELTONE HEARING AID CO., Chicago, Ill. (Booth J-2): The newest model Beltone One-Unit Monopac will be featured in the Beltone Hearing Aid exhibit. Another feature will be the inconspicuous Phantomold. It does away with the need for a receiver button in the ear. The Beltone exhibit will also include the latest electronic equipment for scientific fitting of hearing aids.

THE BEST FOODS, INC., New York, N. Y. (Booth B-9), is exhibiting Nucoa, the wholesome, nutritious, vegetable margarine, which contains 15,000 units of vitamin A to the pound; also on exhibit will be the famous Best Foods—Hellmann's Real Mayonnaise and other Best Foods' products. Miss Elsie Stark, Director of Consumer Education, will be in charge of the booth and will welcome questions about the products.

BIB CORPORATION, Lakeland, Fla. (Booth J-7): This exhibit will dramatize a scale working model of their spotlessly clean plant where Bib orange juice for babies is produced. It will demonstrate how oranges are gently squeezed to avoid excessive peel oil and how juice is specially strained, pasteurized, and hermetically sealed in sterilized containers. The laboratory where continuous tests were conducted and reports made on the Vitamin C content will attract unusual interest.

BILHUBER-KNOLL CORP., Orange, N. J. (Booth C-26): The fine medicinal chemicals, Bromural, Dilaudid, Metrazol, Theocalcin, etc., which fill a most important place in the physician's armamentarium of dependable medication, will be found at the Bilhuber-Knoll exhibit. A visit here will acquaint you with the latest developments among these "Council-Accepted" prescription chemicals which may be prescribed alone or in combinations to meet the needs of the individual patient.

THE BIRTCHER CORP., Los Angeles, Calif. (Booth H-31)

ERNST BISCHOFF COMPANY, INC., Ivoryton, Conn. (Booth M-29, W½), will offer their new Aminophylline Suppository incorporated in an entirely new base that assures stability of the active ingredients. Other Aminophylline products, as well as the amebicide, Anayodin, will be displayed. Trained representatives will welcome your questions concerning these products.

J. BISHOP & CO. PLATINUM WORKS, Medical Products Division, Malvern, Pa. (Booth K-30), will show a full line of "Blue Label" and "Albalon" Hypodermic Needles. The display will feature numerous special needles, including many malleable spinal types, as well as the "Blue Label" Platinum Alloy Needles. The Sempra Syringe—first American-made, interchangeable syringe, will also be on exhibit.

THE BLAKISTON CO., Philadelphia, Pa. (Booth A-3): Be sure to see the product of five years of intensive, scientific work by 100 experts at a cost of $250,000—Blakiston's New Gould Medical Dictionary, the first medical dictionary built on modern lexicographic methods. All branches of medicine and allied sciences are exhaustively covered. Scores of distinctive features make reference easy.

THE BOOK SHOP BINDERY, Chicago, Ill. (Booth B-27): The first glance at this inviting reception room type exhibit will demonstrate how effectively an untidy pile of back copies of medical journals can be converted into a many-sided asset. In this typical background, the attractive rows of handsome, gold-stamped Authorized Bindings claim almost instant attention from the busy physician—suggest the advantages of convenience, compactness, permanence, efficiency, an adequate and accessible library. The low cost and simplified system of handling Authorized Bindings will also win quick approval from the doctor who desires to preserve valuable periodical literature.

THE BORDEN COMPANY, New York, N. Y. (Booths E-8, F-7): A new improved better-than-ever Biolac will be presented here—better physically and more stable. Unchanged are the dilutions, analysis, caloric values, vitamin fortification, and ease of feeding. This new liquid modified milk for infant feeding brings the latest findings of nutritional science at no increase in cost. Presented also will be the long established products, Dryco, Mull-Soy, Klim and Beta Lactose. At Booth F-7, be sure to register for several service items, including some new nutritional literature.

GEORGE W. BORG CORP., Gibbs Div., Delavan, Wis. (Booths L-3, K-4), will exhibit the Mono-Matic Special equipment and a mobile bedside unit. The Mono-Matic Special is a single tube radiographic and fluoroscopic unit comprising a generator rated at 100 MA. at 100 P.K.V., motor driven tilting table and floor-railmounted tubestand. The mobile bedside unit is designed for ease in operation in going through doors, into elevators, etc., and includes a break for use when going down ramps. The self-contained tube head incorporates all the desirable features for equipment of this type, including an overload circuit breaker. It has a capacity of 30 MA. at 80 P.K.V.

JOHN H. BRECK, INC., Springfield, Mass. (Booths J-4, W½), will feature two protective creams- one against oil-soluble substances, the other against water-soluble substances—Breck Hand Cleaner, a mild detergent that cleans without defatting the skin; Breck Hair and Scalp preparations; and Baby Breck preparations. Literature and samples will be supplied on request.

GEORGE A. BREON & COMPANY, Kansas City, Mo. (Booth C-10).

BREWER & COMPANY, INC., Worcester, Mass. (Booth K-2), invites physicians to visit its exhibit which will feature a display of some of the products of its Ampul Division as well as the Tablet Division and two of its specialties, GEL-ETS Oleovitamin A 25,000 units and GEL-ETS Triasyn B. Representatives will be glad to answer any questions concerning these products and arrange for samples and literature to be sent to the physician's office.

BRISTOL LABORATORIES, INC., New York City, N. Y. (Booth F-26).

BROCINER-MASS INSTRUMENTS, INC., New York, N. Y. (Booth B-4, W½): The Clinical Analyzer, a photoelectric colorimeter precalibrated for 70 clinical determinations, will be announced by Brociner-Mass Instruments, Inc. Features are simplicity, ruggedness, and ease of use, affording precision measurements at unprecedentedly low cost for a precalibrated instrument. A loose-leaf, printed instruction manual containing calibrations for 70 clinical determinations, includes detailed instructions for the chemical procedures.

THE BURDICK CORPORATION, Milton, Wis. (Booth B-23), will display its line of Physical Medicine Equipment, including Short Wave Diathermy, Ultra-violet and Infra-red Lamps and the Rhythmic Constrictor. A feature of special interest will be their new Direct-Recording Electrocardiograph. Doctors are invited to inspect this modern equipment for use in physical medicine.

BURNS CUBOID COMPANY, Santa Ana, Calif. (Booth D-32): In addition to the masonite lighted display which has become a symbol for foot comfort to doctors visiting A. M. A. conventions, the Burns Cuboid display will also feature alternating flasher signs. These show the anatomical raises of the Cuboid pictorially outlined against a background of A. M. A. and Good Housekeeping emblems.

BURROUGHS WELLCOME & CO. (U. S. A.) INC., New York, N. Y. (Booths K-18, K-20): Something decidedly different will be seen at the Burroughs Wellcome exhibit. It is a striking and colorful seven foot mural called "The Progress of Medicine," depicting the five main ages of man (Primitive, Greek, Dark Ages, Renaissance and Modern) and his progress in the treatment of disease from primitive magic to the approach of modern science.

BURTON MANUFACTURING COMPANY, Chicago, Ill. (Booth G-11), will feature several new and interesting items, among them the Duffle Photometer which introduces a new visual method for the determination of hemoglobin, blood, sugar, urea acid, sulpha, penicillin, etc., in the blood stream. Burton will also feature the Newman Myometer. It is claimed that the strength of muscles in the fingers, hands, arms, legs, feet, toes, neck, shoulders and many other muscles can be very accurately measured. In addition, Burton will also show their full line of F-L-O-A-T-I-N-G Arm Lights which they have been featuring since the first of 1919.

CALGON, INC., Pittsburgh, Pa. (Booth E-1): A great aid to soap in attaining healthful cleanliness is demonstrated by Calgon, Inc., in the redissolving of hard water deposits by Calgon. Calgon eliminates soap film, assures brighter, softer clothes, cleaner dishes, and scum-free personal bathing. In mechanical dishwashing Calgonite, compounded of Calgon and alkali, solves the sanitation problem arising from film-retained soil.

CAMBRIDGE INSTRUMENT COMPANY, INC., New York, N. Y. (Booth M-10): Important developments in Cambridge instruments will be on view. Cambridge Electrocardiographs and Electrocardiograph-Stethographs will be on display in "Simpli-Trol" Portable and "All Electric" Mobile models. Included in the exhibit will be the Cambridge Research pH Meter, the Cambridge Electrokymograph for recording heart border motion, and the Cambridge Plethysmograph which furnishes standardized, quantitative and reproducible records. New Cambridge instruments for measuring radioactivity will also be shown.

CAMEL CIGARETTES, New York, N. Y. (Booths H-8, I-7), wil feature color slides of background data from their newest research. After weekly examinations of the throats of hundreds of men and women smoking Camel Cigarettes exclusively for thirty days, throat specialists reported "Not one single case of throat irritation due to smoking Camels."

CAMERON SURGICAL SPECIALTY CO., Chicago, Ill. (Booths D-9, H-1): Among the items demonstrated at the Cameron exhibit will be the new Suction Coagulation Handle and numerous accessories for all phases of Electro-Surgery, Electro-Cauterization, Electro-Coagulation, Desiccation and Fulguration; Cameron Surgical Units; Electro-Diagnostic Lamp and Instrument Outfits; the new stainless steel Boros Flexible Esophagoscope and other Peroral and Dualite Sigmoido- Mirrolite and other Loupes; Illuminated , Retractors and other Instruments for all types of diagnosis, treatment and surgery.

S. H. CAMP & COMPANY, Jackson, Mich. (Booth H-15): A series of illuminated transparencies will depict various anatomical conditions before and after application of Camp Scientific Supports. The complete line of Anatomical Supports for prenatal, postnatal, visceroptosis, sacro-iliac, hernia and other specific conditions will be shown. Experts from the Camp staff will be in attendance to answer questions.

CANADIAN RADIUM & URANIUM CORP., New York, N. Y. (Booth B-20): American Refined Radium, now available in any form and in any type of container, and "Old Radium exchanged for new" will highlight this absorbing exhibit. A complete line of Radium instruments, accessories, and protective equipment will be shown, as will the new type Radium "D" applicator for treatment of certain Ophthalmic conditions.

CARNATION COMPANY, Los Angeles, Calif. (Booth F-23), will have an attractive display on Carnation Evaporated Milk—"the milk every doctor knows." Some valuable information on the use of this milk for infant feeding, child feeding, and general diet will be presented and the method by which Carnation is generously fortified with pure crystalline Vitamin D—400 U.S.P. units per reconstituted quart—will be explained. Interesting literature will also be available for distribution . . .

WILMOT CASTLE COMPANY, Rochester, N. Y. (Booths J-6, J-8): At the Castle booth will be shown all that is modern and new in sterilizing and professional lighting equipment. There will be a complete range, including items for the Physician, the Clinic, the small hospital, and the large institution. Oil as a sterilizing medium for all instruments, and pressure sterilization will be featured. The exclusive Castle Safety Light, which is explosion proof, will be shown, and its need in hazardous locations will be explained.

CENTRAL PHARMACAL COMPANY, Seymour, Ind. (Booth M-6), will present their new and improved triple-sulfa preparations—the Trisulfazine line, which includes tablets, (for adults and children) and the suspension. Also on display will be their Synophylate, or Theophylline-Sodium Glycinate line; and Suspension and Tablets Restrol (brand of Dienestrol). Scientic literature and folders containing excerpts and reprints from the latest medical journals will be supplied.

CERTIFIED BLOOD DONOR SERVICE, Jamaica, N. Y. (Booth E-23), plan to exhibit many items for use in hematology and serology. These range from Anti-A, Anti-B, and Anti-Rh blood typing serum to the Anti-human globulin rabbit's serum for the Coombs' test, lyophilized guinea pig complement, preserves sheep cells and a number of new items used in the laboratory for testing purposes never before offered in a commercial way.

CHURCH & DWIGHT CO., INC., New York, N. Y. (Booth I-19): The use of Arm & Hammer and Cow Brand Baking Soda as a dentrifice will be emphasized in the Church & Dwight exhibit. Colorful little booklets suggesting its application in cleaning teeth will be on display and handy pocket-sized samples especially suitable for traveling may be had at the booth.

CIBA PHARMACEUTICAL PRODUCTS, INC., Summit, N. J. (Booth A-10): The Ciba exhibit features Pyribenzamine, an established antihistaminic for allergic relief with minimal side effects. Experienced Professional Service Representatives, in attendance, invite inquiries about this and other important Council-Accepted products manufactured by Ciba.

THE CILKLOID CO., Marshalltown, Iowa (Booth B-1): Plastic surgeons and other physicians interested in skin grafting will want to stop here and learn more about the use of Non-Adherent Perforated Cilkloid dressing material. The impervious Cilkloid will be demonstrated for protective dressings. All Philatelists are invited to rest at Booth B-1 and look over an interesting display.

CLAY-ADAMS COMPANY, INC., New York, N. Y. (Booth M-8): New developments in laboratory and surgical instruments, as well as Medichromes, 2x2" 35 mm. Kodachromes in the medical sciences—and other visual aids such as anatomical models, skeletons, charts—will be displayed. Special emphasis will be given the equipment for Cytological diagnosis of cancer, the Brown Blood Typing and Cross Matching Board, and a new series of Rotators for Sero-diagnostic Tests."

CLERSITE COMPANY, Chicago, Ill. (Booth L-2): For "clearer vision" be sure to stop here where an attendant will clean your glasses perfectly. He will also show you many other ways in which Clersite can aid the physician in keeping spectacles from fogging during operations, mirrors free from condensation during laryngeal examinations, windshields clean, etc.

THE COCA-COLA COMPANY, Atlanta, Ga. (Lounge F-29): A cordial reception awaits physicians and their friends here where ice-cold Coca-Cola will be served through the courtesy and *cooperation of the Coca-Cola* Bottling Company of Atlantic City and The Coca-Cola Company.

WARREN E. COLLINS, INC., Boston, Mass. (Booth E-12): You will not want to miss the display and demonstration of the new Collins Metabolex, a dry metabolism tester for simple, accurate BMR's; the Collins Respirometer, a new apparatus especially designed for lung function studies or routine clinical metabolism tests; and the Drinker-Collins Duplex Respirator, fully equipped with a new auxiliary *resuscitator. Courteous technicians* will welcome your inquiries.

COLWELL PUBLISHING COMPANY, Champaign, Ill. (Booth D-1): Complete medical records, attractively and logically designed—that's the keynote of the Colwell line. *Patients' histories* and accounts are easy to keep; the Daily Log for Physicians provides the basis for keeping track of the business side of a practice. You will want to examine the Daily Log and case history forms, and discuss your individual needs with experienced representatives.

C.S.C. PHARMACEUTICALS, New York, N. Y. (Booth K-24), will display a number of pharmaceutical preparations in addition to their line of penicillin. Representatives of the Medical Department will be in attendance for discussion with physicians.

COMPASS TRAVEL BUREAU, INC., New York, N. Y. (Booth B-30, E½): Following the success of the First Medical Tour to Europe, the Compass Travel Bureau, Inc., the Travel Agency of the American Physician, announces its Second Tour leaving on the S.S. Caronia, August 11. Also scheduled is a five week goodwill tour of South America leaving from Miami, December 17 via Pan American Airways. All information concerning these tours and a preview of medical travel in 1950 will be available at the booth.

CONFORMAL SHOE COMPANY, St. Louis, Mo. (Booth L-24): Members of the medical profession are invited to see how Conformal's exclusive built-in plastic insole is moulded to the individual arch requirements, thus affording better support and better body balance. Some *of Conformal's newest styles for men and women* will be on display. The Conformal line has been expanded greatly in recent years to include many additional dress-up types, as well as the basic walking shoes, all with the special plastic insole.

CONTINENTAL X-RAY CORP., *Chicago, Ill.* (Booths I-3, I-5): With many original and unique features, Continental X-Ray will present for the first showing: The new "Panelmatic 250," a general diagnostic unit with new Automatic Wall Control, new Tubestand, and a new Motor Drive Table. The new "Flexray," popular, *low-cost, all-purpose x-ray unit,* for general radiography and fluoroscopy will deserve your special consideration.

COOPERATIVE MEDICAL ADVERTISING BUREAU, Chicago, Ill. (Booth A-2): Copies of the 34 state medical journals, members of the Bureau comprising the State Journal Group, will be on display. Representing 42 state medical associations, these publications follow the A.M.A. high standards in acceptance of advertising. Prospective advertisers may secure sample copies, rates, and other information at the booth. Also offered are "Advertising Service," a booklet outlining the services performed for both advertisers and advertising agencies, and the Budget Suggestions which offer 29 different plans for coverage in the entire group of publications.

CORECO RESEARCH CORP., New York, N. Y. (Booth M-29, E½), will demonstrate the *Coreco* Camera, designed to photograph surface areas of the body—from 1 to 1 close-up pictures to half-body size—and cavities, such as mouth, throat, ear, nose, vagina, and rectum. This novel camera carries its own specially developed, fully color-corrected bulb and a mechanism for complete control of its color temperature and exposure within the camera itself. There is an automatic view finder synchronized with the automatic camera mechanism to permit viewing until a fraction of a second before exposure and to provide for automatic focusing.

CORN PRODUCTS SALES COMPANY, New York, N. Y. (Booth K-26).

COUNCIL ON WHITE MINERAL OIL, Chicago, Ill. *(Booth I-13): A new booklet reporting the* latest clinical findings, and physicians' statements on Mineral Oil, will be distrbuted by the Council on Mineral Oil. Copies of the Council's advertisements, pointing out the beneficial uses of the laxative, will line the walls. A sample bottle of Mineral Oil will be offered. Dr. William I. Fishbein, Secretary of the Council, will be in charge.

THE CREAM OF WHEAT CORP., Minneapolis, Minn. (Booth L-28): The familiar Regular Cream of Wheat will merit your attention here. You may register at the booth for your copy of their Vitamin Food Chart; Baby Book or Leaflet, "Common Sense Feeding Habits For Your Baby;" and a booklet on special diets for bland feedings.

CURVLITE PRODUCTS, INC., Port Chester, N. Y. (Booth K-3).

CUTTER LABORATORIES, Berkeley, Calif. (Booths K-27, 29): On display here will be the Cutter line of Intravenous Solutions in Saftiflasks with the latest expendable equipment for administration. The most recent *advances and additions to the blood fractions* group of products, as well as their improved Alhydrox immunizing agents, will also be shown for your inspection.

DAVIES, ROSE & CO., LTD., Boston, Mass. (Booth L-19): Cardiologists and other physicians *will be particularly interested* in the preparations displayed by Davies, Rose. Special emphasis will be placed on their Digitalis Pills, wellknown for treir constant and dependable potency. Well-posted representatives will be pleased to have you stop by.

F. A. DAVIS COMPANY, Philadelphia, Pa. (Booth C-7): Interesting new editions and new books on display here will include: The Cyclopedia of Medicine, Surgery and Specialties; Behrend, The Gallbladder and Allied Structures; Bach, Arthritis and Related Conditions; Greenbaum, Dermatology; Judd, Diseases Of The Chest; Malinlac, Rhinoplasty; May, Reparative and Reconstructive Surgery; Troncoso, Gonioscopy; Reimann, Treatment in General Medicine, etc.

DAVIS & GECK, INC., Brooklyn, N. Y. (Booth E-2), manufacturers of sterile surgical sutures, will offer a wide range of suture materials and suture-needle combinations specially prepared for every type of surgery. Literature available will include the D&G Manual, Suturegrams, booklets and leaflets on sutures and wound healing and various reprints. Technical and product information will also be available from company representatives in charge.

DAVOL RUBBER COMPANY, Providence, Rhode Island (Booth K-23).

MRS. DAY'S IDEAL BABY SHOE COMPANY, *Danvers, Mass. (Booth H-21), will show* new styles and materials—made to scientific standards. Lasts have been improved to add to the attractiveness but still retaining the correct length, height and width for the natural development of the baby's feet. Trained registered nurses will be in attendance to be *as helpful as possible to the doctors.*

THE DENVER CHEMICAL MFG. CO., INC., New York, N. Y. (Booth H-6): Galatest for the instantaneous determination of urine sugar, and Acetone Test (Denco) for the detection of acetone in urine will be exhibited here. You *will be especially interested in a demonstration* of these "spot tests" for sugar and acetone. Galatest and Acetone Test (Denco) offer advantages of accuracy, simplicity and economy in routine urinalysis.

DEPUY MFG. COMPANY, Warsaw, Ind. (Booth *B-26): Latest designs in Fracture Appliances* will highlight the De Puy exhibit. Sherman bone plates, Smith-Petersen nails, Lorenzo Half-Thread hip screws, and other items for internal fixation of bones—all made of S.M.O. Stainless Steel—will also merit your attention. A complete line of modern splints for the General *Practitioner will be on display.*

DEVEREUX SCHOOLS, Devon, Pa. and Santa Barbara, Calif. (Booth D-13), is designed to meet the needs of physicians whose patients require a specialized educational program. The emotionally disturbed child with average or susperior intelligence, as well as the slow-learning child, is provided with a well-rounded program of academic, vocational, social, and physical training. Resident medical, psychiatric, and psychological personnel insure intensive, as well as supportive, therapy where indicated. Physicians are cordially invited to discuss the educational problems of any of their patients with representatives at the Devereux Booth.

THE DeVILBISS COMPANY, Toledo, Ohio *(Booth I-8): Instruments for atomization* and nebulization therapy will be displayed, including a hand pump designed for the inhalation of aerosols at home, in a simple and inexpensive manner. Kodachrome transparencies depicting the distribution of aerosols in the lungs and bronchi will be featured. This data *supports clinical findings and experimental work* with aerosols of penicillin, streptomycin, epinephrine and other substances.

THE DIETENE COMPANY, Minneapolis, Minn. (Booth B-13): At the Dietine Company exhibit you will see Meritene, the fortified whole protein supplement, that is really palatable and reasonably priced. Dietene, a "Council-Accepted" Reducing Supplement will be on display too. Complimentary copies of the free personal-type Diet Service will be available to physicians. The diets look as if they were typed in your office for each individual patient.

DOAK COMPANY, INC., Cleveland, Ohio (Booth M-13), will demonstrate Tersus, an aliphatic lotio. Clinical experience by many dermatologsts indicates Tersus to be a dependable detergent free from bilateral effects on the skin. In *actual practice* Tersus *has proven to be free* from irritating factors. Adding Tersus to a bath will prevent formation of the undesirable function of a ring around the tub.

DUKE LABORATORIES, INC., Stamford, Conn. (Booth F-21), will display Elastoplast, stretch*able, adhesive-surfaced bandages and unit* dressings; Gelocast, prepared Unna-paste bandage; Nivea Creme, Nivea Skin Oil and Basis Soap—the "Prescriber's" Cosmetics; and Aquaphor, hydrophylic ointment base.

E. I. DU PONT DE NEMOURS & CO., INC., Wilmington, Delaware, (Booth D-25, D-27): Du Pont x-ray films and processing chemicals will be the features of this exhibit, and "Patterson" intensifying and fluoroscopic screens will be shown. Actual radiographs will be displayed. An interesting sidelight will be the general company exhibit—"What's New From Du Pont," which will show new products introduced by all of Du Pont's Industrial Departments during 1947-'48-'49.

DUREX PRODUCTS, New York, N. Y. (Booth M-28): A most extensive line of A.M.A. accepted contraceptive devices and preparations will be displayed for your examination and approval by Durex Products, Inc. Here you will be able to inspect Bow-Bend, Dumas, Duraflex, Mensinga and Durex Coil Spring Diaphragms, four types of diaphragm inserters and, of course, Lactikol Jelly and Lactikol Creme. Unique combination sets for convenient dispensing will be demonstrated.

E & J MANUFACTURING CO., Glendale, Calif. (Booth H-27): New E & J developments in respiratory equipment will be displayed here, as well as various models of the E & J *Resuscitator-Inhalator-Aspirator.* Resuscitation of infants will be dramatized by the use of E & J equipment on a plastic doll in which the functioning of the lungs can be observed.

EASTMAN KODAK COMPANY, Rochester, N. Y. (Booths G-6, G-8): The role of Kodak *in radiography and medical photography will* be featured at the Kodak exhibit. Included along with an interesting display of radiographs will be three major Kodak products for radiography—Kodak Medical X-ray Films, Kodak X-ray Intensifying Screens, and Kodak X-ray Processing Chemicals. Interesting photo*graphic transparencies in full color will* illustrate the theme "Picture the Patient's Progress." Of especial interest in the display of Kodak equipment for medical photography will be the new Kodaslide Table Viewer.

EATON LABORATORIES, INC., Norwich, N. Y. *(Booth A-30): The Eaton staff will be glad to* discuss recent advances in the use of the new topical antibacterial agents: Furacin Soluble Dressing and Furacin Solution. Also on display will be Aspogen, the basic aluminum salt of the amino acid glycine, for treatment of peptic ulcer. Reprints of the recent clinical investiga*tions of Lorophyn Suppositories and Lorophyn* Jelly will be available.

EDIN ELECTRONICS COMPANY, Worcester, Mass. (Booth A-11), will exhibit a line of Ink-Writing Electrocardiographs and Ink-

Writing Electroencephalographs. They will also feature special Electromedical research equipment. The Edin engineers will be on hand to welcome present and prospective users and to answer questions regarding the use and performance of Edin equipment.

THOMAS A. EDISON, INC., New York, N. Y. (Booth L-30), will present its famous and complete line of disc and cylinder electronic dictating equipment embodying exclusive ear-tuned jewel-action so necessary for medical dictation. High light of the exhibit will be the New Disc Edison Voicewriter enclosed in clear plastic so that you may see the inside store of luxury performance in action.

THOMAS A. EDISON, INC., (Medical Gas Div) Stuyvesant Falls, N. Y. (Booth WP-1).

J. EDWARDS & CO., Philadelphia, Pa. (Booth L-4): A very interesting exhibit of children's shoes for all ages from tots to teens will be on display for your examination. Pre-walking shoes for babies, first step shoes for babies, dress shoes, school shoes and special types of shoes for children with pronations, weak arches, etc. will be included in the exhibit. Edwards have been exclusive manufacturers of children's shoes since 1900.

EISELE AND COMPANY, Nashville, Tenn. (Booth H-5), will feature their new Interchangeable Syringe, as well as their usual line of Hypodermic Syringes, Needles, and Clinical Thermometers. A new type metal tip syringe on which no cement is used will be shown.

EKCO PRODUCTS COMPANY, Chicago, Ill. (Booth WP-3).

ELECTRONIC SURGICAL EQUIPMENT CO., INC., Philadelphia, Pa. (Booth A-27, N½): Exhibited here will be the Radiosurg Scalpel Operating Unit (fully rectified construction), a portable radio frequency surgical apparatus of advanced engineering design. This precision instrument permits the use of varied electronic surgical methods to meet the minor surgical needs of the general physician, proctologist, gynecologist, or surgeon. Constructed according to exacting specifications, it supplies ideal current characteristics.

ELECTRO-PHYSICAL LABORATORIES, INC., New York, N. Y. (Booth L-10): Physicians, especially those interested in cardiology, should not miss this display of cardiac diagnostic and [illegible] PC-2 Pioneer [illegible] a Six-Chan[illegible] radical application of electronics to diagnostic medicine, including the direct-writing Heart Sound Analyzer with unusually high frequency response; the Cardioscan, a visual sampling electrocardioscope; a radically new Electroencephalograph Analyzer, permitting continuous count and integration of frequency components; and a new Blood Sedimentation Rate Meter.

J. H. EMERSON CO., Cambridge, Mass. (Booth B-25): New features of the familiar Emerson Respirator include several attachments to make care of patients easier. Simplified devices for maintaining artificial respiration while a respirator is open; accessories for care of patients requiring tracheotomy (including a humidified-oxygen insufflator); and devices for varying the pressure curve and sequence of pressures obtainable will be shown. Also on exhibit will be Emerson Resuscitators, the Emerson Lung Immobilizer, and the new Hot Pack Apparatus.

ENCYCLOPAEDIA BRITTANICA, INC., Chicago, Ill. (Booth EP-4): This venerable reference work that is eight years older than the declaration of independence and 65 years older than the city of Chicago, where it has been edited and printed for many years, will merit a "stopover" on your tour. It was published in 1768 by a "Society of Gentlemen," in Edinburgh. Today the 24 volume set is written by experts all over the world, including Albert Einstein and George Bernard Shaw. In co-operation with specialists at the University of Chicago, with which Britannica is affiliated, articles are constantly surveyed to keep them abreast of modern events and discoveries. Top authorities then do the writing for the frequent new printings.

ENDO PRODUCTS, INC., Richmond Hill, N. Y. (Booth G-27): A noteworthy addition to the Endo exhibit will be Hycodan Bitartrate, a newly developed antitussive possessing the cough depressant property of codeine but requiring smaller doses for an effective therapeutic action. Other Endo Council-accepted products to be featured are Mesopin, a gastrointestinal antispasmodic providing atropine effects without atropine side effects, and Norodin Hydrochloride, an improved psychomotor stimulant and antidepressant.

ETHICON SUTURE LABORATORIES, New Brunswick, N. J. (Booth K-17), will feature its new line of Ethicon Atraloc Needles in Sterile Pack and Standard Pack packages, developed through several years of intensive research of surgeons' needle needs. These needles will be dramatized by a new Ethicon exhibit featuring a novel transparent plastic display wheel, containing Ethicon needles embedded within the plastic. This wheel will revolve, bringing each needle in turn before a three power magnifying glass and permitting microscopic scrutiny by the exhibit's viewers.

EUREKA X-RAY TUBE CORPORATION, Chicago, Ill. (Booth J-25), will be very pleased to meet members and friends attending the convention at their exhibit. A full line of x-ray tubes as used for radiography, superficial and deep therapy will be on display. Your special attention is directed to the stainless steel rotating anode tube, which is guaranteed for 20,000 exposures.

EVAPORATED MILK ASSOCIATION, Chicago, Ill. (Booth L-13): Be sure to register with the Evaporated Milk Association, at Booth L-13, for a free copy of "Infant Feeding with Evaporated Milk," a manual for physicians on the use of vitamin D fortified evaporated milk in infant feeding. Other publications on the properties and uses of evaporated milk in child nutrition, maternal welfare, social welfare, public health and general nutrition will be on display. These publications, available without charge, are designed for professional people, and for distribution to those whom they serve.

EXERCYCLE CORP., New York, N. Y. (Booth J-32), will display a new cycle designed for use in the treatment of disability and as an aid in the overall adjunctive therapy of neuropsychiatric conditions. Its variable speeds provide optional pedal action against a brake, with resistance registered on a graduated scale, adjustable pedal radius and adjustable seat.

EXPERT BEDDING CO., Chicago, Ill. (Booth I-28): The keynote of this exhibit will be Bedding Dust, its Reduction and Elimination from a dust-sensitive patient's environment. On exhibit will be a complete display of "Altex" Hypo-Allergenic casings and allied bedding products; also the "Ilgairator," a window air filter. Descriptive literature will be available at the booth.

FANCEE FREE MFG. CO., St. Louis, (Booth H-28): Your maternity patients will really enjoy wearing the Fancee Free Garter Belt demonstrated here. Not only during pregnancy, but long after as the garment is also excellent for general wear. This all elastic garter belt fits around the waist in back and below the abdomen in front, thus eliminating all pressure.

H. G. FISCHER & CO., Franklin Park, Ill. (Booths L-26, M-25), will present for your inspection their modern, outstandingly efficient yet low priced x-ray and physical therapy equipment. Let them point out the many features of advantage in these representative units and other models not on display. H. G. Fischer & Co.'s 38 years devoted solely to designing and manufacturing x-ray and physical therapy equipment help make them a leader in this field and assure products of dependable performance and great durability. Your visit will be welcome.

FISHER-STEVENS SERVICE, INC., New York, N. Y. (Booth A-27, S½): This exhibitor maintains a list of all practicing physicians and interns in the United States. The list is used by pharmaceutical manufacturers, book publishers, and equipment makers for the distribution of direct mail advertising. If you have changed your address recently stop by and tell them about it, in order to make certain that your mail is received with no delay.

C. B. FLEET CO., INC., Lynchburg, Va. (Booth H-26), will feature Phospho-Soda (Fleet) which has been an ethical product for over half a century. This is a pure, stable, aqueous concentrate of the two U.S.P. sodium phosphates. It is indicated in hepatic and gallbladder dysfunction and whenever a thorough eliminating action is desired. It possesses rapidity and mildness of action with marked absence of nausea, griping or tenesmus.

FLINT, EATON & COMPANY, Decatur, Ill. (Booth I-24): The introduction of Choline therapy in early and late cirrhosis of the liver is one of the most interesting of recent medical developments. An easy and palatable way of administering Choline to your patients will be featured at Flint, Eaton & Company's booth. An up-to-the-minute edition of a very comprehensive digest on the present status of Choline therapy will be available. Interesting and unusual color photographs of liver pathology will also be featured.

FLORIDA CITRUS COMMISSION, Lakeland, Fla. (Booth J-13): Orange Juice will be served by representatives of the Florida Citrus Commission. This juice will be reconstituted from frozen orange concentrate which has been heralded as one of the "hottest" items in the frozen food field. The exhibit contains five animated dioramas depicting the preparation of citrus from tree to consumer.

FOLEY MFG. CO., Minneapolis, Minn. (Booth D-10): At this exhibit you may see an interesting demonstration showing how the Foley Food Mill saves time and food for the homemaker in the preparation of fresh cooked vegetables and fruits for all smooth diets.

THE FOREGGER COMPANY, INC., New York, N. Y. (Booth C-29), will exhibit a number of unique items including specially designed CO_2 Absorbers and Endotracheal Equipment as used in the Blalock Operation, and a new Portable Anesthesia Apparatus about the size of a press photographer's camera and not much heavier. This Equipment will be in addition to the latest in Anesthesia Apparatus for Hospital use.

GASTRO-PHOTOR LABS., CORP., New York, N. Y. (Booth K-13), will feature the No. 500 model of the Gastro-Photor—"the camera for photographing the interior of the stomach." Sixteen gastrophotographs are provided with one exposure of this stomach camera which make possible the diagnosing of ulcers hidden within rugal folds or in locations inaccessible to X-Ray observations. Samples of actual gastrophotographs will be available for your observation.

GENERAL ELECTRIC CO., Cleveland, Ohio (Booth D-22): Germicidal lamps, recently accepted by the A.M.A.'s Council on Physical Medicine for the disinfection of air in hospitals, nurseries and operating rooms, will be the center of attraction here. A special display will demonstrate how ultraviolet radiation from germicidal lamps prevents the growth and spread of mold. Also to be shown are G-E photographic lamps, and health lamps in the form of sun and heat lamps.

GENERAL ELECTRIC X-RAY CORPORATION, Milwaukee, Wis. (Booths D-17, D-19, D-21), will exhibit their new Model E Inductotherm, a moderately priced high output diathermy unit which culminates 15 years of development of the original Inductotherm. Also shown will be the Cardioscribe, a direct writing, portable electrocardiograph that gives permanent records without darkroom delay. In addition, several types of radiographic and fluoroscopic equipment will be exhibited.

GENERAL FOODS CORPORATION, New York, N. Y. (Booths J-26, L-8), is looking forward to the Convention, and eagerly anticipates the opportunity it presents to greet old friends and to make new acquaintances. At one of their booths registrants will be served a cup of delicious Instant Sanka Coffee—an instant decaffeinated coffee; at the other, a cooling Postum Milk Shake. Nutritionists are prepared to discuss Diamond Crystal Iodized Salt, D-Zerta, and Post Cereals.

GERBER PRODUCTS CO., Fremont, Mich. (Booth H-25): Strained Foods, Junior Foods, Pre-cooked Cereals, and the new Gerber-Armour Meats for Babies will comprise this exhibit. Your inspection of their service materials on infant feeding and adult special diets, particularly the newly revised and enlarged Special Diet Recipes booklet, will be welcomed.

GOMCO SURGICAL MANUFACTURING CORPORATION, Buffalo, N. Y. (Booth I-11) will feature their new Aerosol Penicillin pump, the Tidal Irrigator and Cystometer, and a complete line of physicians' office suction, suction and ether and suction and pressure treatment units. Of particular interest to Public Health officers will be the 788FS, a compact compressor especially equipped for drying children's teeth before and during the application of fluorine preparations.

GOODMAN-KLEINER CO., INC., New York, N. Y. (Booth L-32): Physicians treating marital infertility are invited to witness actual demonstrations of the new improved editions of those uniquely successful instruments the Weisman Gynograph and Gynogauge. The improvements are radical, and have built-in pressure controls which assure optimum safety. In addition, this company is proud to announce its appointment as exclusive distributors of the Goldman-Belskie Anatomical models, which can be palpated. These models will be on display.

B. F. GOODRICH COMPANY, Akron, Ohio (Booth L-27): A "Miller" brand surgeon's glove manufactured by the celebrated Anode process and inflated to 30 times its normal size is the featured attraction of this exhibit. The distended glove tells its own dramatic story regarding strength, uniform thickness, highest quality rubber used in its construction. The general line of surgical rubber products which the B. F. Goodrich Company manufactures are also included in the exhibit. These are surgical tubes, tubing, catheters and other sick room supplies made of rubber.

GRADWOHL LABORATORIES, St. Louis, Mo. (Booth C-30), will demonstrate its various activities: the manufacture of laboratory reagents, including blood grouping sera, stains for the Papanicolaou method, Giemsa (Commission Certified) stain, etc.; the training of laboratory technicians; publication of a monthly journal, The Laboratory Digest—a running account of the advances in laboratory medicine; and promotion of the fourth edition in three volumes of the standard reference book of laboratory diagnosis, entitled, Clinical Laboratory Methods and Diagnosis (a Mosby publication). Visitors are requested to register for publications issued by this company.

GRASS INSTRUMENT CO., Quincy, Mass. (Booth M-31), manufacturers of Electroencephalographs and electrophysiological equipment since 1935, will exhibit the latest in Electroencephalographs, Model III-C. Accessory devices for operating room use will also be [illegible] present to advise [illegible] tallation and use of [illegible] Information on [illegible] and amplifiers will be available.

GRUNE & STRATTON, INC., New York, N. Y. (Booth B-17): Among the many G & S books to be shown at the exhibit, the following 1949 publications deserve your special attention: Sigler, Cardiovascular Disease; Minot, Symposium of Hematology; Crohn, Regional Ileitis; Iason, Synopsis of Hernia;; Davis, Shock and Allied Forms of Failure of the Circulation; Wespi and Schiller, Early Carcinoma of the Uterine Cervix; Wiener, Surgery of the Eye, Second Edition; Sommers, Histology and Histopathology of the Eye, Hoch and Zubin, Psychosexual Development In Health and Disease; Bergler, The Basic Neurosis; Rosenzweig, Psychodiagnosis.

HAMILTON MANUFACTURING COMPANY, Two Rivers, Wis. (Booths K-9, K-11): You will want to examine the three suites of Examining Room Furniture displayed here. Deluxe NuTone, the distinctive and modern NuTrend, and the professionally styled Steel-Tone. Also shown will be the No. 9905-BAP All-Purpose Examining Chair-Table and representative items of business office and reception room furniture.

HANOVIA CHEMICAL & MFG. COMPANY, Newark, N. J. (Booth F-25): A complete line of self-lighting ultraviolet quartz lamps for orificial and body irradiation, Sollux Radiant Heat Lamps, as well as germicidal quartz jacketed models will be demonstrated and displayed. Competent and courteous representatives will be at your disposal.

THE HARROWER LABORATORY, Glendale, Calif. (Booth M-4): Mucotin, the mucin antacid, is presented at the Harrower technical exhibit. Gastroscopic illustrations show the coating action of Mucotin on a large gastric ulcer. A case history report of a patient with a gastric ulcer and the response to treatment is demonstrated with gastroscopic pictures. Gastric acidity control studies with various antacids are graphically presented. Literature and samples will be available at the exhibit.

H. J. HEINZ CO., Pittsburgh, Pa. (Booth M-9): Heinz Strained and Junior foods will interest doctors concerned not only with the feeding of infants and toddlers but also of adults. These foods are gaining rapid acceptance for special diets in gastro-intestinal disturbances, geriatrics, and other conditions where strained and junior foods are required.

PAUL B. HOEBER, INC., Medical Book Department of Harper & Brothers, New York, N. Y. (Booth A-26), will display their entire distinguished list of medical and scientific books. New Hoeber-Harper titles of outstanding importance include Coley's Neoplasms Of Bone; Ritvo's Roentgen Diagnosis Of Diseases Of The Skull; Barrow's Varicose Veins; Gesell and Ilg's Vision; Harris' Psychological Medicine, and Berliner's Biomicroscopy Of The Eye. This year there are many new editions of standard Hoeber-Harper volumes such as Kaplan, Radiation Therapy; Alvarez's Introduction To Gastroenterology; Fowler's Hematology and Hamilton and Hardy's Industrial Toxicology. Visit the Hoeber booth to see many of today's most important medical books.

HOFFMANN-LA ROCHE, INC., Nutley, N. J. (Booth C-17), will devote its exhibit exclusively to their Council-Accepted specialty, Prostigmin. The many recognized uses of Prostigmin are always of interest to physicians. A staff of experienced representatives will be pleased to have you stop by for a discussion of Prostigmin and other Roche specialties. Your visit will be most welcome.

HOLLAND-RANTOS COMPANY, INC., New York, N. Y. (Booth D-30).

HOLLISTER-STIER LABS., Spokane, Wash. (Booth D-20): "Specialists" in allergenic products for diagnosis and treatment, members of the staff will be available to answer specific questions pertaining to this firm's Personalized Allergy Service of nation-wide scope. Testing sets for pollen and other allergenic extracts will be displayed along with therapeutic extracts and treatment dilutions. Accessories for office and laboratory use will be demonstrated, and an opportunity given to reserve a copy of Allergy Handbook, pollen survey, and sundry items.

WILLIAM S. HORN COMPANY, Fort Worth, Texas (Booth M-30, W½): Visitors here will have an opportunity to inspect the Hospital Bedhight Bedpan Commode, a device to be used by patients occupying hospital beds. The commode seat is at the level of the mattress so that patients may have the comfort of normal stooling posture with a minimum of effort. Any patient who may sit or who is allowed the backrest should have the comfort and convenience of this commode. It is desirable in handling obstetrical and surgical patients during early post-operative days and promotes early ambulation. It is of especial value in handling cardiac invalids and more particularly, the obese patient. The commode vessel is a standard hospital bedpan. Both portable and cabinet-table models will be exhibited.

HOSPITAL LIQUIDS, INC., Chicago, Ill. (Booth C-5), will show its complete line of Shaw solutions and Haemovacs, blood and RH typing sera, Coagusol and disposable sets. The new Steri-Pak Seal built into each bottle of solution showing positive proof of sterility will be featured and demonstrated.

RICHARD HUDNUT, New York, N. Y. (Booth D-8), manufacturers of the famous Richard Hudnut Home Permanent and Richard Hudnut Hair Preparations and DuBarry Beauty Preparations, are displaying in an eye-catching booth the DuBarry Beauty Preparations in their attractive new packaging — streamlined and smart, yet soft and feminine! DuBarry Beauty Preparations . . . as well as the Hudnut Home Permanent and Hair Preparations . . . have the honor to be accepted for advertising in publications of the American Medical Association.

HYGEIA, THE HEALTH MAGAZINE, Chicago, Ill. (Booth A-1): Ask the booth attendant here to mail one or more free copies of HYGEIA to your home or office reception room. See the pictorial representation of a modern magazine's editorial contributors, processes of editing, methods used for accepting advertising, division of readership groups, etc. Featured are sequence-lighted color transparent photographs showing how HYGEIA "speaks" to patients, their families, and members of various professions.

THE HYGEIA NURSING BOTTLE CO., INC., Buffalo, N. Y. (Booth E-27): Here is an opportunity to see the advantages of the Hygeia Nursing Bottle units and to learn why prescribing these units will help mothers overcome feeding problems.

HYNSON, WESTCOTT & DUNNING, INC., Baltimore, Md. (Booth K-8), will feature Aluminum Penicillin Tablets and other pharmaceutical specialties of their manufacture. A series of charts illustrating the effectiveness of oral therapy with Aluminum Penicillin in a variety of penicillin susceptible diseases will be displayed. Representatives of the company will be present to demonstrate products and to provide information regarding them.

ILLE ELECTRIC CORPORATION, Long Island City, N. Y. (Booth J-11), will demonstrate how the care of infantile paralysis, arthritis, and other disabling conditions can be greatly improved by the use of Hydromassage Subaqua Therapy Tanks. They will also display an improved Mobile Whirlpool Bath with New Mobile Adjustable High Chair, Mobile Sitz Bath and new improved completely automatic temperature control Paraffin Baths.

INTERNATIONAL COLLEGE OF SURGEONS, Chicago, Ill. (Booth L-12): The exhibit of the United States Chapter, International College of Surgeons, will present graphically detailed information concerning the activities of the College in all their phases, the principles upon which the organization is founded and functions, the location of its component Chapters throughout the world, its general and educational program and the extent of its activities.

IODINE EDUCATIONAL BUREAU, INC., New York, N. Y. (Booth I-15), will emphasize the place of iodine in the fields of surgery, medicine and nutrition. Samples of official U.S.P. and N.F. preparations containing iodine, and samples of iodine preparations accepted by the Council on Pharmacy and Chemistry of the American Medical Association will be displayed. Representatives will be present to offer to physicians the Bureau's bibliographic and other services.

IVES-CAMERON COMPANY, INC., New York, N. Y. (Booth D-23): Competent Medical Service Representatives will be at this booth to answer all your questions regarding vitamins and other pharmaceutical products made by I.V.C Their eminently well qualified research staffs, through constant experimentation and study, are responsible for some of the most important advances in the field of therapy.

JANEIL SHOP FOR HANDICAPPED GIRLS, Chicago, Ill. (Booth L-11): Here will be displayed pictures of the various activities and departments of Spalding School for Handicapped Children. This Public School is one of the largest and finest of its kind in the world. A complete program of education and rehabilitation is maintained with full cooperation of physicians. Janeil Shop, a Sheltered Work Shop at Spalding School, trains badly handicapped girls to sew. Their products are sold for their benefit. The shop will have a magnificent display.

JOHNSON & JOHNSON, New Brunswick, N. J. (Booth L-17), will feature Hemo-Pak, demonstrating the latest developments in the field of hemostatic absorbable surgical dressings. The new, improved adhesive tape, perfected in the Johnson & Johnson research laboratories, will also be displayed, along with several recent additions to a complete line of surgicals.

JONES METABOLISM EQUIPMENT COMPANY, Chicago, Ill. (Booth J-9), will provide a staff of trained technicians to operate a "dry" clinic on all metabolism problems and to introduce interested visitors to the many recent developments and improvements incorporated into the Jones metabolism equipment.

"JUNKET" BRAND FOODS, Little Falls, N. Y. (Booth M-7): Essential facts on the chemistry of the rennet enzyme and the nutritional significance and psychologic value of rennet desserts in the diets of infants and adults will be explained. The enzymatic action of rennet in producing softer, finer, more readily-digestible milk curds will be illustrated. Literature giving the dietary applications of rennet products will be available for your reference.

KANSAS CITY ASSEMBLAGE CO., Kansas City, Mo. (Booth A-23), will exhibit the newly improved Padgett-Hood Dermatome, featuring an aluminum drum which gives increased lifting power, retains nearly all cement on the drum when skin is stripped from the drum, automatically aligns the knife edge with the drum surface and sets the knife edge to register with the scale. The calibrated screw-type Padgett-Hood Dermatome; Carlson Double Arm Support for kidney surgery; Wells Apparatus for intravenous anesthesia; and the Neff-Fredeen-Herrman Blood Transfusion Set, especially useful for infants and children, will also be of interest.

THE KELLEY-KOETT MFG. CO., Covington, Ky. (Booths E-28, F-27), will feature a tilting Radiographic Fluoroscopic Table with a self-rectified generator and another vertical and horizontal diagnostic unit. An interesting display of X-ray accessories and supplies will also be shown.

KELLOGG CO., Battle Creek, Mich. (Booth I-23): A Kellogg service for physicians attending the AMA Convention will include a set of special Diet Pads covering Bland, High Residue, Low Caloric, High Caloric, Salt Restricted, and Low Fat diets. A Special Diet Manual, also offered, gives suggestions for additional restricted diets indicated in certain conditions. This material has been carefully prepared following the recommendations of well-known authorities on diet in disease. Complete information concerning Kellogg cereals will be available.

KEYSTONE VIEW COMPANY, Meadville, Pa. (Booth A-21).

KIDDE MANUFACTURING CO., INC., Bloomfield, N. J. (Booth M-14), will show for the first time their newly improved Kidde Utero-tubal Insufflators with exclusive Gasometer pressure control, together with the Kidde Opaque Oil Attachment for Salpingography, etc. Some of the new improvements will include a Strip Kymograph and Flow Meter. The improved Kidde Dry Ice Apparatus with the orifice "non-clog" vent control which makes cryotherapy a practical means of treating most superficial skin lesions will also be displayed.

LAKESIDE LABORATORIES, INC., Milwaukee, Wis. (Booth E-10), exhibit will present newer methods in the treatment of cardiac failure in graphic form. Reprints of most recent literature on this subject will be available. Representatives will be on hand to discuss new methods of administering the mercurial diuretic, Mercuhydrin, and the latest developments in this field.

LaMOTTE CHEMICAL PRODUCTS CO., Baltimore, Md. (Booth B-2): For thirty years this exhibitor has been supplying physicians and clinical laboratories with simple, reliable testing sets, such as the LaMotte Blood Sugar Outfit. As new and specialized methods have been developed, LaMotte Outfits have made them available to the physician. Among the new tests exhibited this year will be a new Liver Function test; a new Blood Protein test; and the Cardiolipin Antigen for syphilis serology.

LANTEEN MEDICAL LABS., INC., Chicago, Ill. (Booth I-21): Representatives here will discuss an improved diaphragm fitting technic used in conjunction with the Lanteen Flat Spring Diaphragm.

BURNEICE LARSON, Chicago, Ill. (Booth C-22), will offer the facilities of The Medical Bureau, an organization serving as counselor in problems of medical personnel to medical schools and universities, public health organizations, hospitals and institutions, group clinics, physicians in private practice and industry. The records of Diplomates of the American Boards, younger physicians interested in obtaining training and, also, of administrators, executive and supervising nurses, scientists, laboratory technicians, x-ray technicians, social workers and dietitians will be available to those interested in the *completion or reorganization* of their staffs.

LEA & FEBIGER, Philadelphia, Pa. (Booth A-18), will exhibit such outstanding new books and new editions as Hartman and Brownell—The Adrenal Gland; Palmer—Stomach Disease as Diagnosed by Gastroscopy; Partipilo—Surgical Technique; Quiring—Collateral Circulation; Tuft—Clinical Allergy; Krimsky—Binocular Imbalance; Burch and Winsor—Electrocardiography; Lichtman—Diseases of Liver, Gallbladder and Bile Ducts; Bridges—Dietetics for the Clinician; Gray—Anatomy; Soffer—Diseases of the Adrenals; Joslin—Diabetic Manual; Kraines—Neuroses and Psychoses; Spaeth—Ophthalmic Surgery; and many other standard books of practical guidance.

LEDERLE LABORATORIES DIVISION, New York, N. Y. (Booths J-10, J-12): The Lederle exhibit will feature Aureomycin HCl, a promising new antibiotic having broad coverage against gram positive and gram negative bacteria as well as certain viral and rickettsial organisms. This antibiotic has been found to be particularly effective in virus atypical pneu*monia, brucellosis, and lymphopathia venereum.* Technical personnel will be in attendance.

CHARLES LENTZ & SONS, Philadelphia, Pa. (Booth A-9), will feature a complete line of interesting and new stainless steel instruments, both standard and special for all fields of surgery. Included also will be physicians' genuine leather bags, electric-diagnostic instruments, biological refrigerators and a new airtight circulating fan.

LIBBY, McNEILL & LIBBEY, Chicago, Ill. (Booth B-21): The advantages of Libby's Strained and Homogenized Foods will be described in the Libby, McNeill & Libby booth. Discussions pertaining to the dietary management of infants and older babies will be welcomed.

THE LIEBEL-FLARSHEIM CO., Cincinnati, Ohio (Booths E-15, F-19): The latest L-F diathermy and electrosurgical apparatus will be available for examination and demonstration. This year's June exhibit will feature the "Office Bovie," an electrosurgical unit specially designed for office use. Capable representatives will be on hand at all times. Stop by and become acquainted.

ELI LILLY AND COMPANY, Indianapolis, Ind. (Booths I-18, I-20, I-22), will center their exhibit this year around an interesting demonstration of the rapid slide flocculation test for the serodiagnosis of syphilis with Cardiolipin. Tests made with Cardiolipin have been found to be more easily performed than earlier ones, and their sensitivity is as good or better than others using a lipoid antigen. False positive reactions, although not completely avoided *by the Cardiolipin test, are materially reduced,* especially in malaria.

LINCOLN LABORATORIES, INC., Decatur, Ill. (Booth E-29), a pioneer in the development of hormone aqueous suspensions, will present their modern, all-glass ensemble for the display of a number of their leading, well-known parenteral medications, featuring Aqueous Suspension of Estrogenic Substances. Literature, favors, and professional samples will be available.

THE LINDE AIR PRODUCTS COMPANY, New York, N. Y. (Booth I-9), will feature a working model of a Linde-designed oxygen piping system, and suggestions on the conversion of a hospital room into an efficient oxygen chamber. Hints on improving oxygen tent efficiency will be presented graphically. Linde USP oxygen, oxygen therapy regulators, flowmeters, and outlet valves, and the Beckman magnetic oxygen analyzer will also be on display.

J. B. LIPPINCOTT COMPANY, Philadelphia, Pa. (Booths A-20, A-22, A-24): Look to Lippincott for timely, practical, and authoritative information—to selected professional books in all fields of medicine, surgery, nursing, and pharmacy. Here is a continual indication of current medical trends and needs which serves as the basis for new and revised clinical volumes and textbooks. Here are reports of the outstanding and significant work being done in general practice, as well as the specialties, by men making very real contributions to medical progress.

THE LOFSTRAND COMPANY, Rockville, Md. (Booth B-4, E½): The Lofstrand Company will present *the latest* research developments in prefabricated leg brace parts. These parts are quickly and easily assembled into various types of lightweight aluminum leg braces. Also featuring: proper physiological fit by employing multi-pivot knee locks—interchangeable stirrups—excellent wearability—beautiful permanent alumilite finish. The newly expanded line of Lofstrand Featherweight Crutches will also be presented.

P. LORILLARD CO., INC., New York, N. Y. (Booths G-26, G-28): The exhibit by the makers of Old Gold Cigarettes is symbolic of the company's manufacturing policy which has been to retain all that is best in traditional methods and combine these with the best that Twentieth Century science affords. The booth is manufactured of the newest of plastics, plywood, and illuminated with indirect florescent light. *The central feature is a lighted map* showing the extent of Lorillard's manufacturing and sales facilities.

LUZIER'S, INC., Kansas City, Mo. (Booth G-17): A complete display of Luzier's Fine Cosmetics and Perfumes will be attractively displayed here. These beauty aids will be of special interest to dermatologists and allergists, as well as to the ladies who visit the Convention. Officials of Luzier's Inc. will be on hand to explain Luzier's Service in the field of allergy.

M & R DIETETIC LABORATORIES, INC., Columbus, Ohio (Booths E-14, E-16): Representatives here will be pleased to discuss the merits of Similac, a food for infants deprived of breast milk, and to suggest its application for both the normal and special feeding case.

MACALASTER BICKNELL CO., Cambridge, Mass. (Booth B-30, W½): Fenwal equipment for the manufacture of intravenous fluids within the hospital; equipment for the collection of whole blood, processing of plasma and dispensing of blood and plasma; and a unique seal for handling surgical fluids in the operating room and about the hospital will spotlight this exhibit.

MACHLETT LABORATORIES, INCORPORATED, Springdale, Conn. (Booth F-4), will display a complete line of x-ray tubes, including rotating and stationary types for radiographic work and an unusually wide range of therapy tubes. The featured items in the radiographic field will be the Machlett 125 KV high-energy rotating anode tube (Super-Dynamax) and a special rotating anode tube (Dynamax "26") for fluoroscopy and spot-film work. In the *therapy field* will be shown the new Aeromax "18" for operation at 135 KV. (A version of this tube is offered for radiography up to 125 KV.) The Machlett OEG-50 beryllium window tube, operating at 50 KVP makes available the higest intensity soft x-rays.

THE MACMILLAN COMPANY, New York, N. Y. (Booth H-21): Prominent works awaiting your examination here include: Dr. Thomas Addis' Glomerular Nephritis, wholeheartedly accepted by practitioners; (the initial printing was exhausted late in 1948, and the book is now in the reprint stage. It is a challenging and thought provoking monograph); the new book, Syphilis: Its Course and Management, by Evan W. Thomas, M.D., of particular significance because of the attention being paid this new method of treatment at the present time (The experience of Dr. Thomas and his associates is of primary interest to the practicing physician); Reich's Diseases of the Aorta; and Burstein's Fundamental Considerations in Anesthesia (both in press). A new study in the radiological diagnosis of bone and joint diseases, authored by Emerik L. Markovits, M.D., is also being prepared by the publisher.

THE MAICO COMPANY, INC., Minneapolis, Minn. (Booth C-3), is exhibiting the famous Maico audiometers, the Maico Atomeer, all-in-one hearing aid, and the Maico Stethetron, an electronic device for selecting and amplifying the heart and respiratory sounds. AMA members will be interested in seeing the newest developments from the Maico laboratories which have contributed so much to the field of medical acoustics.

MALLINCKRODT CHEMICAL WORKS, St. Louis, Mo. (Booth E-32): Representatives in attendance here will be glad to serve you in answering questions concerning the medical chemicals on display, or any other problems relative to the medicinal line of chemicals as supplied by the Mallinckrodt Chemical Works.

THE MALTINE COMPANY, Morris Plains, N. J. (Booth H-12): Demonstrations of the approved methods for determining prothrombin time feature the Maltine exhibit. Research personnel and professional representatives will be available to discuss anticoagulant therapy and the new stable Thromboplastin-Maltine.

MANHATTAN UNIFORM CO., Chicago, Ill. (Booth K-1), along with many other styles, will feature the style with round neck and action back, this model allows more room in back without affecting its neat professional appearance and may be worn over or without a shirt and tie. The same style in high collar will also be offered. Many styles of Nurses uniforms besides the new 2-piece outfit will be on display.

MARCELLE COSMETICS, INC., Chicago, Ill. (Booth H-18): New developments and new products in the Marcelle hypo-allergenic Cosmetic line will be demonstrated at their attractive exhibit. Among these will be the Foundation Lotion for Oily Skin and the Foundation Lotion for Dry and Normal Skin. The Foundation Lotion for Oily Skin has found great utility as a flesh tinted astringent vehicle into which medication can be incorporated; the Foundation Lotion for Dry and Normal Skin, as an outstanding camouflage for cutaneous blemishes. The Marcelle representatives will include members of their research organization who will have data and information on the role of Marcelle hypo-allergenic cosmetics in the physician's practice.

THE S. E. MASSENGILL COMPANY, Bristol, Tenn. (Booth L-9): An interesting display is planned to inform the physician of the ever-growing number of Massengill Council-Accepted products. These preparations are basic in that they are applicable in everyday practice.

F. MATTERN MFG. COMPANY, Chicago, Ill. (Booths F-1, F-2, G-1, G-2): Make a "must-see" stop on your Convention tour at the Mattern exhibit and examine the fine *low-priced* X-Ray equipment shown. Mattern is the originator of the push button control on X-Ray units and is considered one of the leaders in introducing the latest in new designs. Your personal examination of this useful equipment is invited.

McFEDRIES X-RAY CO., Chicago, Ill., (Booth K-32), will be exhibiting their new 100-100 Ball-Mounted *Radiographic-Fluoroscopic* Unit with Electric Shutters and Hand Tilt Table. This unit offers the doctor both horizontal and vertical fluoroscopy as well as radiography. The Table and Bucky are carefully counterweighted to facilitate ease of operation. The finish is grey hammertone and the price attractive.

McGRAW-HILL BOOK COMPANY, INC., New York, N. Y. (Booth I-6): Advance material on three distinguished new McGraw-Hill books will be available for examination at the McGraw-Hill Book Company exhibit: Mental Hygiene in Public Health, By Paul V. Lemkau, M.D., a study of the relation between public health and mental hygiene; Epilepsy nad Convulsive Disorders in Children, By Edward M. Bridge, M.D., the clinical aspects and practical management of epilepsy; and Clinical Electroencephalography, By Robert Cohn, M.D., a manual for interpretation of electroencephalograms.

McKESSON APPLIANCE COMPANY, Toledo, Ohio (Booth M-11), will show the latest developments in anesthesia equipment, as well as items of interest to office and clinical personnel. Parts catalogs will be available, as will technicians to help you solve your service problems. Your visit of inspection will be welcomed.

McKESSON & ROBBINS, INC., New York, N. Y. (Booth D-15): A display of Council-Accepted vitamin products and Tartan Suntan Lotion will be made, along with laboratory demonstrations of the technique of instrumental vitamin assays and the evaluation of Tartan showing its high degree of effectiveness in selectively absorbing certain ultraviolet radiations and the transmission of those desirable for tanning.

D. C. MCLINTOCK CO. INC., Hackensack, N. J. (Booth C-19): Doctors will want to visit this booth and inspect the fine products of A. de St. Dalmas Co., Ltd. of Leicester, England on display. Founded in 1823, this firm has won recognition for the fine quality of its bandages and dressings. The Dalzoflex outer adhesive elastic bandage is flesh colored and when used in combination with the "Primer Bandage" is advantageous in pressure-bandage therapy.

McNEIL LABORATORIES, INC., Philadelphia, Pa. (Booths G-13, 15).

MEAD JOHNSON & COMPANY, Evansville, Ind. (Booths A-6, A-8, F-14, F-16): Amigen and Protolysate will be on display at the Mead Johnson Exhibit. Mead Johnson has pioneered the amino acid field commercially; and the products have been described in more than four hundred articles in the medical literature. Trained representatives will be at the Mead exhibit to discuss details of the new amino acid products. Shown also will be Dextri-Maltose, Pablum, Pabena, Oleum Percomorphum, and the other Mead Products used in Infant Nutrition.

MEDCRAFT ELECTRONICS CORP., Long Island City, N. Y. (Booth M-30, E½).

MEDICAL CASE HISTORY BUREAU, New York, N. Y. (Booth F-20): A handy, compact method for keeping complete case histories will be the feature here. In the Info-Dex Record System, charts are so arranged on folders that subsequent cards may be attached by means of a cotter pin which holds the cards together in correct sequence and prevents loss or detachment. Different colored cards for various types of data such as laboratory, x-ray findings, etc. are obtainable. Included in this system is an automatic diagnostic cross-indexing. Steel filing cabinets in which to house these history charts and bookkeeping records will also be displayed. Representatives at the exhibit will gladly consult with you on any record problem or help you systematize your office routine.

MEDICAL FILM GUILD, New York, N. Y. (S. E. Movie Room), through Medical Films that teach, will present a refresher course in fundamental medical problems. Each film subject is produced in the manner of a textbook, profusely illustrated, and offering information comparable to that found in post-graduate courses. These films are available at no charge to intern groups, hospital staff conferences, limited nurse groups, and to general medical meetings. This includes free projection service, arranged through grants for postgraduate instruction.

MEDICAL INSTRUMENTS & EQUIPMENT CO., Stillwater, Okla. (Booth EP-5).

MEDICAL·MAILING SERVICE, INC., Chicago, Ill. (Booth K-5): Physicians desiring to mail reprints to their colleagues may secure complete, detailed information including counts and prices for addressing and mailing to any select group of physicians in the United States and Canada. Many physicians and pharmaceutical manufacturers use this service. Medical Mailing Service has more than twenty years experience in handling this work. Exhibitors are also invited to call and discuss their direct mail campaigns.

MEDICAL PROTECTIVE COMPANY, Fort Wayne, Ind. (Booth J-19): Fifty years of service to the medical profession is commemorated here. A visit to the booth will acquaint you with the Specialized Service Plan of this firm which has concentrated its efforts on the legal liability problems of the profession for fifty years.

THE MENNEN COMPANY, Newark, N. J. (Booth I-17): The center of interest at the Mennen exhibit will be their two baby products —Mennen Baby Oil and Mennen Baby Powder. The Baby Oil is now being used routinely by the majority of hospitals that are important in maternity work.

MERCK & CO., INC., Rahway, N. J. (Booths H-14, 16), will have an interesting presentation of pure vitamin B_{12}. The history of its gradual purification over a number of years and the preliminary chemical studies of this highly potent compound will be depicted. Other panels will show pharmacology (animal growth) and therapy, emphasizing the treatment of pernicious anemia, including not only the blood response but also neurological and mucous membrane improvement.

THE WM. S. MERRELL COMPANY, Cincinnati, Ohio (Booth I-26), will feature Diothane Ointment with Oxyquinoline Benzoate, an improved preparation for applying an anesthetic to areas that require prolonged contact, and where it is desirable to provide a protective antiseptic coating. Of relatively low toxicity, Diothane Ointment with Oxyquinoline Benzoate has established a reputation for safety in clinical use.

METRO-TEC, Chicago, Ill. (Booth E-6), will display the Schindler Flexible Gastroscope featuring the new Metro-coated lens system. Every lens is covered with a special chemical coating increasing the brilliance of the illumination by one third. This gastroscope also provides the preferred fingertip light control at Off-8V-10V-12V-15V position by simply sliding a button incorporated in the handle. Stop in for a demonstration.

THE WM. MEYER COMPANY, Chicago, Ill. (Booth F-10), who have been actively engaged in the production of quality x-ray equipment since 1904, will as usual exhibit several popular medical x-ray units. They anticipate introducing something doctors have all been waiting for and extend a cordial invitation to pay them a visit during the meeting.

E. B. MEYROWITZ SURGICAL INSTRUMENTS CO., INC., New York, N. Y. (Booth D-26), will headline ophthalmological apparatus and eye, ear, nose, and throat instruments. Specialties will include: Corneal transplant instruments; Hertel Exophthalmometer; Troncoso Gonioscope; Schiotz and McLean Tonometers: French and German scissors, forceps and punches; Binocular Loupes; Wolf Mouth Gag; and English Antrum Syringe.

MICROTONE COMPANY, St. Paul, Minn. (Booth EP-2).

MILLER SURGICAL COMPANY, Chicago, Ill. (Booth WP-5).

MINE SAFETY APPLIANCES CO., Pittsburgh, Pa. (Booth C-12), will feature the new MSA Pneophore which utilizes intermittent positive pressure to restore breathing asphyxia and permits the most advanced technique in inhalational therapy. In addition to the Pneophore's use in respiratory emergencies to assist in the prevention of asphyxial death, the instrument is applied in cases of poliomyelitis with respiratory arrest, pulmonary edema from exposure to irritant gases, super-heated air, or other causes, etc.

THE C. V. MOSBY CO., St. Louis, Mo. (Booths C-14, C-16): A wealth of new and interesting material will attract visitors to the Mosby booth. A few of the recent releases include: Speed-Campbell, Operative Orthopedics; Sutton, Handbook of Diseases of the Skin; Slocum, An Atlas of Amputations; Merrill-Picker, Atlas of Roentgenographic Positions; Davison, Handbook of Materia Medica, Toxicology and Pharmacology; Kantor-Kasich, Handbook of Digestive Diseases; and many others.

MOTHERS' AID AUXILIARY CHICAGO LYING-IN HOSPITAL (Booth L-17), publishers of Our Baby's First Seven Years Record Book and Scrapbook, invites doctors to see and order Layette Sheets for Maternity Patients and Measurettes for Pediatricians. These attractive pieces are free and shipped without charge. The sale of books benefits research at Chicago Lying-In Hospital.

V. MUELLER & CO., Chicago, Ill. (Booth H-10): An interesting selection of new instruments for all branches of surgery will form a large part of the V. Mueller exhibit, which will also feature many fine instruments of pre-war quality that are now available. A new explosion-proof surgical unit will also be shown for the first time, highlighting a display of some of the most modern surgical equipment.

NATIONAL ASSOCIATION OF MARGARINE MANUFACTURERS, Washington, D. C. (Booth K-28): Information on margarine, its ingredients and manufacture, and its role in sound nutrition, may be found in Booth K-28. The National Association of Margarine Manufacturers invites your questions and views on the place of margarine in the diet. Current margarine literature and taste samples of margarine are available gratis.

NATIONAL DAIRY COUNCIL, Chicago, Ill. (Booth F-5): "Dairy Products Complete Your Daily Meals" is the theme of the colorful display to be shown by the National Dairy Council. Full color photographs of three daily meals, with and without Dairy products, dramatize, with colorful charts, the importance of dairy products to nutritionally adequate meals. Portfolios of the latest Dairy Council material are also on display at the booth.

NATIONAL DAIRY PRODUCTS CO., INC., New York, N. Y. (Booth C-27), will devote their exhibit to Formulac an Infant Food which has in a comparative few years become an outstanding product for the feeding of newborns through the formula period and continued as the baby drinks from the cup. The medical profession from coast to coast. graciously accepted "Formulac" right from the day it was first introduced.

THE NATIONAL DRUG COMPANY, Philadelphia, Pa. (Booth L-14): Their extensive line of Council-Accepted biological, biochemical, and pharmaceutical products attests to the emphasis placed upon high standards by this firm. Trained representatives will be on hand to welcome you and supply you with any descriptive literature you may wish, or answer any questions you may have pertaining to the uses, dosage, and administration of "National Drugs."

NATIONAL ELECTRIC INSTRUMENT CO., INC., Elmhurst, N. Y. (Booth M-22): A number of new and interesting items which will invite your special attention include: the Electricator, for simple, effective minor electrosurgery; the Nasopharyngoscope 5070, possessed of many advantages; the latest "National" development—the Operating and Double-catheterizing Cystoscope 21 Fr.; and the still refreshingly new Quad-disc Ophthalmoscope. Visitors will also be impressed by a number of important improvements in the Diagnostic Sets.

NATIONAL INSTITUTE OF DIAPER SERVICES, INC., New York, N. Y. (Booth C-1): It does make a difference what diaper service a doctor recommends, says the NIDS whose members now serve 150 metropolitan areas. These members are the only diaper services operating under compulsory national laboratory control, which assures physicians that the diapers are "safe." Look for the new NIDS display at their booth and ask for a bank to take home to the kiddies.

NATIONAL LIVE STOCK AND MEAT BOARD, Chicago, Ill. (Booth J-14): Weight Control by means of a well planned adequate diet is the theme of the nutrition exhibit of the National Live Stock and Meat Board. The value of a liberal amount of meat in the maintenance of normal weight is emphasized. Literature on this subject and on general nutrition will be available.

THOMAS NELSON & SONS, New York, N. Y. (Booth D-11), will feature The Nelson Medicine, a loose leaf system, edited by Dr. Walter W. Palmer; Diagnostic Roentgenology, edited by Dr. Ross Golden; Surgery of the Ear, edited by Dr. Samuel J. Kopetzky; Surgery of the Nose and Throat, edited by Dr. John D. Kernan. In addition, Nelson will show three of their new line of bound books: Virus Diseases of Man by Drs. C. E. van Rooyen and A. J. Rhodes; Deafness, Tinnitus, and Vertigo by Dr. Samuel J. Kopetzky; and a completely revised, new, bound edition of Medicine of the Ear edited by Dr. Edmund P. Fowler, Jr. Prepublication information on Gynecologic Diagnosis, by Dr. Robert Tauber, may be had at the exhibit.

THE NESTLÉ CO., INC., New York, N. Y. (Booth H-23): For your relaxation, The Nestle Company cordially invites you to enjoy a hot cup of delicious Nescafe. And, for your information, specially qualified representatives will be on hand to answer your questions on any of Nestle's milk products—already known and used for babies 'round the world. New pieces of valuable professional literature will be available.

THE NEW YORK MEDICAL EXCHANGE, New York, N. Y. (Booth H-20): Patricia Edgerly will be in Booth H-20 for the sole purpose of helping you, whether your problem be to find the best man or the best opening. Her successful experience in serving the medical field exclusively since 1926 is the best assurance that she can help you. Stop by and chat with her.

NORTH AMERICAN PHILIPS CO., Mt. Vernon, N. Y. (Booths M-3, M-5), will display a new combination radiographic-fluoroscopic unit in two executions; namely 15 and 30 MA capacities. For the first time, their Okalix Dental Unit—a new, cleverly engineered development will be exhibited. This self-contained unit is probably the smallest yet developed and has an effective focus of approximately 0.5 mm. Their new X-ray rotating anode tube—Rotalix—for which Philips has long been famous, will also be shown.

OBRIG LABORATORIES, INC., New York, N. Y. (Booth M-1): The new Obrig Lacrilens made from molds will be shown for the first time. *This new contact lens, say the producers*, is solutionless, medically correct, and safe. The patient's tears form the necessary fluid lens, thereby eliminating difficulties caused by artificial buffer solutions. The new lens can be worn over long continuous periods with comfort.

THE OHIO CHEMI [illegible] Wis. (Booth E-4), [illegible] gases; Heidbrink [illegible] tables, sutures; and [illegible] *The new* Sterijar suture glass container will also be displayed.

LYDIA O'LEARY, INC., New York, N. Y. (Booth K-31): Visit the Lydia O'Leary exhibit and witness the Covermark demonstration. *Covermark is especially prepared for the instant* concealment of all types of blemishes involving *the pigment of the skin, including Birthmarks*, Goiter Scars, Burns, Vitiligo, Psoriasis, and all skin discolorations. Covermark has been found particularly successful in overcoming the psychological handicaps which result from even minor facial blemishes.

ORGANON, INC., Orange, N. J. (Booth I-29, E½): Heparin—the body's natural anticoagulant—will be the subject about which the Organon exhibit will be centered. Subcutaneous injection and other new methods of administering Liquaemin—the Organon brand of heparin—will be described. Newer concepts of the mechanism of blood coagulation, showing sites of heparin action, will be illustrated together with a machine actually demonstrating the anticoa [illegible] the blood. Doca [illegible] acetate), another [illegible] oduct, will also be featured.

ORTHO PHARMACEUTICAL CORP., Raritan, N. J. (Booth M-18): The Ortho exhibit this year will tell a unique and forceful story of the physician's role as a "Marriage Counselor." The Ortho Zipkit, a new approach to the packaging of contraceptive items, will be featured. The Zipkit is a beautiful, woven plastic, zippered bag containing Ortho-Gynol, Ortho-Creme, and the Ortho Diaphragm.

ORTHOMATIC MATTRESS CO., Manchester, N. H. (Booth A-25): For the consideration of visiting doctors, nurses and others, the Orthomatic Mattress Company is exhibiting an innovation in sleeping equipment—the Orthomatic Mattress and Orthomatic Bed. Combined in one unit, it offers the advantages of straight-line sleeping posture with the comfort of Goodyear Airfoam. Also featured will be their foam rubber pillows and Airfoam specialties.

ORTHOPEDIC FRAME COMPANY, Kalamazoo, Mich. (Booth J-4, E½): The new Stryker Bone Saw is the feature here. This new safety saw cuts bone efficiently, and its many shaped blades give varieties of cuts permitting new techniques in bone "carpentry." It is designed to give the maximum service with a minimum of attention. Also shown will be the new improved Stryker Over-Bed Frame, the reliable Stryker Turning Frame, and the proven Stryker Cast Cutter.

OXFORD UNIVERSITY PRESS, INC., New York, N. Y. (Booth A-28): A complete 14-volume set of the new printing of the Oxford Loose-Leaf Medicine, with over one-third of the contents new in the past three years, will be among the new Oxford books at Booth A-28. *Other important Oxford new books and new* editions include: Barach: Diabetes and Its Treatment; Barach: Food and Facts For the Diabetic; Brodal: Neurological Anatomy; Boyce: Acute Appendicitis; Davidson: Diseases of the Chest (3rd Edn.); Fulton: Aviation Medicine; Fulton: Physiology of the Nervous System (3rd Edn.); Hill: Operative Surgery; Kayne, Pagel and O'Shaughnessy: Pulmonary Tuberculosis (2nd Edn.); Lockhart: Living Anatomy; Movitt: Digitalis (2nd Edn.); Murray: Some Common Psychosomatic Manifestations; Simpson: Major Endocrine Disorders (2nd Edn.).

G. H. PACKWOOD MANUFACTURING COMPANY, St. Louis, Mo. (Booth F-12), will feature Pax-Lano-Sav Heavy Duty Granulated Skin Cleanser which has been still further improved in quality and cleansing efficiency. More Pax-Lano-Sav Emollient, combining lanolin and other fine emollient oils, has been integrated into the cleanser to help prevent defatting and chapping of the skin. A softer, safer Pax-developed scrubber has also been incorporated. *Identified as* Duramen-Meal, it is made of specially selected heartwood that has been processed, blended and milled to proper particle size and combined wth carefully processed and sterilized cornmeal. This new scrubber literally rolls imbedded soil from the skin with a soft, absorbent washcloth action. No detergents are contained in Pax Heavy Duty. Its bulk plus increased cleansing efficiency offer great economy in use as it develops abundant lather, stays free flowing, and can be used in any good commercial dispenser designed for granulated or powdered soap.

PARAVOX, INC., Cleveland, O. (Booth J-29, E½): The Paravox Neon Plastic Display, which has appeared at numerous fairs and expositions *throughout the country*, graphically illustrates the assembly of Paravox Hearing Aids which are mounted on a black mirrored surface. The chassis are molded from special iridescently luminous plastic tubes and hidden neon tubes surround the display, which has red and black fluted columns.

PARKE, DAVIS & CO., Detroit, Mich. (Booths J-18, J-20, J-22), will feature the new Antibiotic—Chloromycetin. This Antibiotic has *been identified chemically, and is the first* to be synthesized and produced on a practical basis in pure crystalline form. The exhibit will illustrate its Chemical Properties, Pharmacology, and Toxicology; the Laboratory Spectra for Susceptible Bacteria, Rickettsia, and Viruses, as well as graphs and tables relating to its therapeutic application. Chloromycetin represents an outstanding achievement in medical science by the Parke-Davis Research Laboratories. Members of the Parke, Davis & Company Medical Service Staff will be available for consultation and discussion relating to this new, as well as other well-known Medical Specialties comprising their list. Be assured that your interest will indeed be very much appreciated.

THE E. L. PATCH COMPANY, Boston, Mass. (Booth F-9), will feature, in addition to their old standby Kondremul, their newer Council-Accepted products—Glytheonate and Alzinox. *Every physician who uses Theophylline in his* practice will be [illegible] the *Patch brand of* [illegible] nate, which provides [illegible] rapy *with minimal gastric irritation.* Alzinox is the Patch brand of dihydroxy aluminum aminoacetate which gives rapid and prolonged relief in peptic ulcer and hyperacidity. Patch representatives will be happy to give you all the facts concerning these new, effective products.

PEERLESS X-RAY LABS. & MFG. CORP., New York, N. Y. (Booth L-7): In addition to the "Multrascope" (a combinaton x-ray and fluoroscopic unit) Peerless will exhibit their new fluoroscope which is completely redesigned with consideration to eye appeal and performance. The unit is comparatively moderate in price and considerably less cumbersome than former models.

THE PELTON & CRANE CO., Detroit, Mich. (Booth K-21): Featured here will be the new Model LV Autoclave—a completely self-contained unit, chamber size 12 x 22, that eliminates the necessity for costly installation, designed specifically for small clinics and multiple offices. Company representative invites your inspection of this new but already popular Autoclave, beautifully finished in lustrous chrome.

PEPSI-COLA COMPANY, Long Island City, N. Y. (Booths I-1, 2, 4, J-1, 3)

PEPSODENT DIVISION LEVER BROTHERS COMPANY, Chicago, Ill. (Booth H-7): Rayve, the new personalized Home Permanent with exclusive Dial-A-Wave Chart, will certainly interest you—and your wife. The individual "Rayve Number" is a personal guide to the correct timing procedure that's best for each individual type of hair and the amount of wave desired. Scientifically controlled in every step of manufacture by the famous Pepsodent Laboratories, Rayve's improved cream cold waving formula is fast, gentle, and so simple. Extensive patch tests have demonstrated Rayve's high quality and its gentle nonsensitizing composition. Trained Laboratory personnel will be in attendance, eager to give you full details about Rayve Home Permanent.

MURLE PERRY, Minneapolis, Minn (Booth B-22), will exhibit Colostomy and Ileostomy appliances of unusual design. Made of clear plastic in various sizes and models with interchangeable inserts, it enables proper fitting of all stomas, regardless of location. May be satisfactorily worn under a corset.

PET MILK COMPANY, St. Louis 1, Mo. (Booths G-12, G-14, G-16), will exhibit a miniature working model of an evaporated *milk plant. This exhibit offers an opportunity* to obtain information about the production of Pet Milk, its use in infant feeding, and the time-saving Pet Milk services available to physicians. Miniature Pet Milk cans will be given to physicians who visit the Pet Milk booth.

PETRA MANUFACTURING COMPANY, Chicago, Ill. (Booth H-2) will present their complete line of plastic protective garments for the physician, nurse and office personnel. All garments and covers are designed to give maximum protection against acids, liquids, stains, dust, dirt, and chemicals. The material used—Krestex—is impervious to water, soft and supple, gives long wear, and is easy to keep clean. The whisk of a damp cloth will always clean the garment and make it like new again.

PHILIP MORRIS & COMPANY, New York, N. Y. (Booths A-19, C-18, C-20), will demonstrate the method by which it was found that Philip Morris Cigarettes, in which diethylene glycol is used as the hygroscopic agent, are *less irritating than other cigarettes.* Their representative will be happy to discuss researches on this subject and problems on the physiological effects of smoking.

THE PICKER X-RAY CORP., New York, N. Y. (Booths B-3, B-5, B-7), will exhibit the Series "200" motor drive tilt table, equipped with an automatic motor driven spot film device; a 60 milliampere Comet unit; and a 120 KV oil cooled Zephyr unit. Interesting demonstrations will be given of a complete line of accessory items, including the new bench type Anhydrator, for drying films without heat; and the new improved Weisman Gynograph, for the diagnosis and treatment of female sterility.

GEORGE P. PILLING & SON CO., Philadelphia, Pa. (Booth C-25), will feature the newly-developed Kirby-Thurston Cholelithophone, an efficient electro-acoustic probe for locating gallstones at the time of operation. Contact with stones in the common or hepatic ducts produces a sharp, audible click. Its value to the surgeon is instantly recognized. Also on display will be the comprehensive line of Pilling surgical instruments and equipment.

PITMAN-MOORE CO., Indianapolis, Ind. (Booth C-10) will feature some of the Company's newest Council-Accepted products, including Magmoid Sulfadimer, a suspension of sulfadiazine and sulfamerazine with sodium lactate; Ultraviolet Irradiation Killed Rabies Vaccine; and Poison Ivy-Poison Oak Extract (Ivoko) for prophylactic administration against either or both types of rhus dermatitis.

PREMO PHARMACEUTICAL LABORATORIES, INC., Hackensack, N. J. (Booth C-2), will exhibit newly accepted dosage forms of antibiotics, aerosol and injectable, at the convention. The products will be demonstrated, and literature will be available.

W. F. PRIOR COMPANY, Hagerstown, Md. (Booth J-16), will show the latest revisions of their loose-leaf reference books, Tice's Medicine, Lewis-Walters Surgery, Brennemann-McQuarrie Pediatrics, and Davis' Gynecology and Obstetrics. Many collected abstracts on current and interesting subjects will also be available for your examination. Members of the Prior Threefold Service are entitled to copies of any of these articles—a practical solution to the problem of keeping up to date.

PROCTOR & GAMBLE CO.—IVORY, Cincinnati, Ohio (Booth I-10), will feature four popular pads of instruction sheets designed to save time of busy doctors and nurses in giving patients instruction in routine care. Subjects covered will be "Instructions for Routine Care of Acne," "Bathing Your Baby," "Bathing a Patient in Bed," and "The Hygiene of Pregnancy." Doctors may replenish their supply of these helpful materials by registering at the booth.

PROFESSIONAL EQUIPMENT CO., Chicago, Ill. (Booths H-22, H-21), will display their full line of radiographic and fluoroscopy equipment. In addition, the company will show their latest product development—a low cost Profexray Superficial Therapy unit. All aspects of the new apparatus—design, function and price—is expected to create great interest among Dermatologists and Radiologists alike. For the first time, says this exhibitor, a superficial therapy unit has been developed that combines design beauty with full and reliable performance at an unusually low cost.

PROMETHEUS ELECTRIC CORPORATION, New York, N. Y. (Booth L-22), will demonstrate its line of minor operating lights and sterilizing equipment. Several new types of minor operating lights will be shown, together with many suggestions concerning the most desirable sterilizing equipment for the doctors' office.

THE PYRAMID RUBBER COMPANY, Ravenna, Ohio (Booth F-3): In the Pyramid exhibit you will see their new "Mechanical Baby" demonstrate how, as an infant nurses the Evenflo Nurser, air bubbles are drawn into the Evenflo bottle to keep the pressure constant and prevent nipple collapse. Also on display are the new 4-oz. Evenflo Nursers for hospitals, first weeks at home, and for giving orange juice, water, and strained meats.

RADIUM CHEMICAL CO., INC., New York, N. Y. (Booth K-19), will exhibit a complete line of radium and radon applicators and accessories for the tréatment of cancer and allied diseases.

THE RADIUM EMANATION CORPORATION, New York, N. Y. (Booth J-27), will display and explain leak-proof Radon Seeds (Permanent or Removable), Loading-slot seed implanters, Ametal Rubber gynecological applicators, and several new applicators, and improvements in cancer-therapy technique.

RALSTON PURINA COMPANY, St. Louis, Mo. (Booth D-28): A beautiful new booth will greet you here. Colorful translights showing the composition of Instant Ralston and Hot Ralston cereals, graphically portray their nutritive value and importance in the diet. Dietary uses for Ry-Krisp and Shredded Ralston will also be presented in color. You may examine and register for a variety of valuable diets: *three nutritionally adequate low calorie* diets, five allergy diets, and a series of four feeding direction forms for infants and young children.

RARE CHEMICALS, INC., Harrison, N. J. (Booth K-25): Gitaligin (formerly known as Gitalin), the cardiac glycoside offering greatest safety in digitalizing patients and in establishing maintenance dose, will be the main feature here. Other products include: Testosterone Propionate "Rare" and Methyl Testosterone "Rare" (only Council-Accepted male hormone preparations); Dienestrol "Rare"—tablets and aqueous suspension (new estrogen producing less than 1% untoward reactions); Acidolate, Dermolate, and Terjolate (skin and household cleansers).

RAYTHEON MANUFACTURING COMPANY, Waltham, Mass. (Booth I-29, W½): The Microtherm, Raytheon's up-to-the-minute radar diathermy will be featured here. A completely post-war diathermy, the Microtherm offers a highly efficient, convenient, safe form of deep heat [illegible] features are hi[illegible] for deep heatin[illegible] of active hyper[illegible] pleased to greet you.

REED & CARNRICK, Jersey City, N. J. (Booth G-4): Menopausal well-being will be a feature of this exhibit. Meprane Dipropionate, orally potent synthetic estrogen, and Estrogenic Substances, R & C, mixture of naturally occurring estrogens, in oil solution and aqueous suspension for prolonged action, will be displayed.

REVIEW & HERALD PUBLISHING ASSN., Washington, D. C. (Booth D-6): Whether yours is a specialty or a general practice, you owe it to yourself to visit this exhibit and see the interesting books offered for your reception room. Life and Health, a unique magazine with one of the largest circulation figures of any ethical lay health journal in America, will also be on display. An unusual introductory offer will interest you.

REXALL DRUG CO., Los Angeles, Calif. (Booth M-2): The Petechiometer, a clinical instrument for the determination of increased capillary fragility (increased permeability) by the application of suction over the biceps for one minute, will interest you here. It can evaluate the efficacy of therapeutic measures employing vitamin K or Ascorbic Acid when administered in the treatment of petechial hemorrhage, frequently associated with nutritional deficiencies, Dicumarol therapy, or found as a syndrome complicating many illnesses.

RITTER COMPANY, INC., Rochester, N. Y. (Booths B-31, B-32, C-32).

WILLIAM H. RORER, INC., Philadelphia, Pa. (Booth L-6), will have on display its new Council-Accepted product Carfusin, which is stabilized Carbol-Fuchsin Paint. Carfusin is widely employed for topical application in superficial fungus infections of the skin such as epidermophytosis, interdigitalis pedum ("Athlete's Foot"), other intertriginous lesions of fungus origin, tinea trichophytina and tinea imbricata.

ROYAL METAL MANUFACTURING CO., Chicago, Ill. (Booth H-4): Royalchrome offers a large selection of furniture for the medical profession, including a new all-purpose Eye, Ear, Nose and Throat Chair featuring exclusive Hydra-Lift unit for easy seat height control and completely adjustable Ophthalmic headrest. Whatever your budget and whatever your needs, look first to Royalchrome for both professional and reception room furniture.

SANBORN COMPANY, Cambridge, Mass. (Booth J-17): Featured at the Sanborn exhibit will be "working" models of two new research-type instruments of attraction to physicians interested in cardiac diagnosis: the Poly-Viso Cardiette, a multi-channel biophysical research recorder; and the Electromanometer for the direct registration of venous, intracardiac, and other physiological pressures. Also on display will be the popular Sanborn instruments for clinical diagnosis: the Viso-Cardiette, a leader among direct-writing electrocardiographs; the Instomatic Cardiette, battery-operated, photographic 'cardiograph; and the Metabulator, famous all-enclosed, one-level-operation metabolism tester.

SANDOZ PHARMACEUTICALS, New York, N. Y. (Booth E-25): Physicians interested in migraine should not miss this exhibit, featuring an animated presentation of the current theory of the mechanism of migraine headache and relief following administration of Gynergen (ergotamine tartrate). Other preparations displayed will include Digilanid (crystalline glycosides of Digitalis lanata), Sandoptal, Scillaren, and Calglucon (the original calcium gluconate).

SARATOGA SPRINGS AUTHORITY, Saratoga Springs, N. Y. (Booth M-27): This exhibit consists of pictorial information to explain facilities available to the public at the New York State owned Saratoga Spa as a part of the State's public health service. The center theme is an aerial view of the 1200 acre reservation. It emphasizes the natural carbonated mineral waters and their treatment, *the bottled natural waters, and the recreational* features.

W. B. SAUNDERS COMPANY, Philadelphia, Pa. (Booths A-12, A-14, A-16), will present its complete line of books including Hyman's Integrated Practice of Medicine; Bockus' Gastro-enterology; Conn's Current Therapy; Meleney's Treatment of Surgical Infections; Snyder's Obstetric Analgesia and Anesthesia; Lyons & Woodhall's Atlas of Peripheral Nerve Injuries; Crile's Practical Aspects of Thyroid Disease; DeGowin, Hardin & Alsever's Blood Transfusion; Levine & Harvey's Clinical Auscultation of the Heart; Fine's Care of the Surgical Patient; Pepper's Medical Terminology; new editions of McLester's Nutrition and Diet in Health and Disease; Weiss & English's Psychosomatic Medicine; Stieglitz' Geriatric Medicine; and many others.

SCHENLEY LABORATORIES, INC., New York, N. Y. (Booth E-18): Physicians who visit the Schenley exhibit will be welcomed by a trained staff of professional representatives well posted on the present-day status of penicillin therapy. The exhibit will illustrate the intensive scientific controls under which Schenley Council-accepted penicillin is produced in their laboratories at Lawrenceburg, Indiana.

SCHERING CORPORATION, Bloomfield, N. J. (Booths I-16, J-15): Four distinctive specialties will highlight this exhibit—Estinyl, Schering's ethinyl estradiol, long known for its clinical effectiveness and economy in oral estrogen administration; Solganal, a highly effective gold suspension indicated in rheumatoid arthritis; and Priodax and Neo Iopax, radiographic opaque media. Representatives will be present at the exhibit to welcome inquiries concerning all of Schering's pharmaceutical specialties.

SCHIEFFELIN & CO., New York, N. Y. (Booth M-24), will present their synthetic estrogen Benzestrol, which offers the advantages of: effective estrogenic activity; reduced incidence of side-effects; versatile dosage forms and strengths; and low cost. Clinical trial has confirmed the value of this preparation for use in the menopause, and other established indications for estrogen therapy.

JULIUS SCHMID, INC., New York, N. Y. (Booth F-28): This exhibit's new look will appeal even more strongly to physicians who visited the Julius Schmid, Inc., booth last year in Chicago. Ease of determining the correct size Ramses Prescription Packet No. 501 for any given patient will be shown, as will outstandingly good qualities of Ramses Gynecological Products, every one "Council-Accepted." Representatives will be ready to answer questions.

G. D. SEARLE & CO., Chicago, Ill. (Booths K-14, K-16): At the Searle booths a large number of anatomic and pathologic subjects will be exhibited in colored translites, colored slides, and plastic models. They will illustrate such various conditions as congestive heart failure, bronchial asthma, hay fever, colitis, amebiasis, active rheumatoid arthritis, etc. Featured Products of Searle Research will be Aminophyllin, Metamucil, Diodoquin, and Gold Sodium Thiosulfate.

THE SENATOR HOTEL, Atlantic City, N. J. (Booth D-7): The new scientific Sun Room of the Hotel Senator will be transferred, in part, to their exhibit for inspection by the medical profession. Banks of special infrared and ultraviolet lamps, which produce the radiant warmth and benefits of natural sunshine, will demonstrate why the Senator Solarium is an excellent place for post-operative recuperation and convalescence.

SHAMPAINE COMPANY, St. Louis, Mo. (*Booths J-21, J-23*): Shampaine factory-trained representatives will be in attendance to demonstate the popular Martin All-Purpose Chair-Table and the Garfield Proctoscopic Table. An important feature of the Shampaine exhibit will be the newly developed Hermann Major Operating Table that offers an exaggerated kidney position plus head-end control of all important adjustments. Shampaine will also display examining room and general office furniture.

SHARP & DOHME, INC., Philadelphia, Pa. (Booths F-11, F-13, F-15): Stable, portable Lyovac Normal Human Plasma irradiated to destroy not only bacteria but also the viral contaminants that might cause homologous serum hepatitis merits your attention at this exhibit. Unusual Specialties including the popular sulfonamide drugs also will be of major interest. Courteous attendants will be pleased to serve you.

SHAY MEDICAL AGENCY, Chicago, Ill. (Booth B-11), a personnel placement service, will have representatives in attendance who specialize in the selection of candidates for positions in all branches of the Medical and Dental profession. You are invited to call upon them and discuss your own requirements in strict confidence. If you are an employer seeking help or an applicant seeking a position they can assist you. Whether your needs are immediate or for the future, stop by and talk it over.

SHELLMAR PRODUCTS CORPORATION, Mount Vernon, Ohio (Booth D-29), will exhibit an improved model of The Shellie Nurser, an innovation in infant feeding which was placed on the market late in 1948. The Shellie Nurser features collapsible, disposable, pre-sterilized "bottles" with a new type natural-action nipple. Continuous demonstrations will be given by registered nurses.

SIEBRANDT MFG. CO., Kansas City, Mo. (Booth D-2), will display a complete line of bone instruments and fracture equipment. Outstanding features on exhibit will include the Goodman Bone Clamps and Finger Trap Attachment; the improved Jackson Bone Clamp for reduction and alignment of fractures; Plate Holding Clamps, which presents an entirely new approach in the technique of applying Bone Plates; Depth Gauge to determine length of screw needed; Improved Screw Driver; and the new Offset Drill Guide.

J. SKLAR MANUFACTURING CO., Long Island City, N. Y. (Booth F-18): This year, Sklar will present a comprehensive display of Stainless Steel Surgical Instruments, many of which are new and have never been displayed before at a medical convention. Many of these instruments were designed, developed and manufactured in cooperation with leading American surgeons. The display will also include Sklar's full line of Suction and Pressure Apparatus, long known and recognized for perfect performance; the ever popular and efficient Fritz's Automatic Drainage and Aspirating Apparatus; the famous Davidson's Pneumothorax Apparatus; and Sklar's Improved Schiotz Tonometer.

(Continued on advertising page 128)

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

April 18, 1949.

Republican National Health Bill Introduced

Senators Taft (Ohio), Smith (New Jersey) and Donnell (Missouri), Republicans, on April 14 introduced S. 1581, a national health bill that will be pitted against the proposed compulsory health insurance program of the Truman administration. Introduction of the Republican measure followed by one day Senator Taft's warning that the party must support health, education and housing legislation or go out of existence. Following are the major provisions of S. 1581:

1. It establishes a National Health Agency, uniting under one head—who would be a doctor of medicine appointed by the President—the U. S. Public Health Service, the Food and Drug Administration, St. Elizabeth's Hospital and health functions now performed by the Social Security Administration. This provision was taken, with few changes, from S. 545, which the same sponsors introduced in 1947.

2. Federal funds totaling $5,000,000, to be matched by the states on a 50-50 basis, are authorized for the purpose of surveying medical, dental and hospital services—both public and private—and needs.

3. Over a five year period, a total of $1,250,000,000 is authorized for allotment to the states "for broadening the distribution of their medical and hospital services to a point where these services are available to all families and individuals unable to pay the whole cost of such services." Size of matching funds will depend on per capita income of the respective states.

4. Authorization of $35,000,000 annually in state grants for school health services, substantially as provided by S. 1411, a separate bill favorably reported to the Senate on March 25.

5. The Hill-Burton hospital construction act of 1946 is liberalized, increasing annual federal allotment to $150,000,000 and effecting other changes along the lines of S. 614, previously introduced by Senators Taft, Smith, Hill and Ellender.

6. This section of S. 1581 is substantially S. 522, which was introduced last January, which provides for federal subsidization of local public health agencies throughout the country.

7. Establishment of a sixteen member advisory board is recommended to study man power supply and training problems with reference to medicine and the allied health professions. Its recommendations would be transmitted to Congress by Jan. 15, 1952. Meantime, subsidization of medical schools would be authorized: $500 for each student enrolled up to the school's average enrolment in the previous three years and $750 for each student in excess of that average.

8. Federal employees would be encouraged to enrol in voluntary nonprofit health insurance plans by directing government departments and agencies to deduct from pay envelopes, on request of the employee, the amount required for periodic premium payments.

"The extent to which a state desires to provide health and welfare services to its people is a matter for each state to determine," said Senators Taft, Smith and Donnell when they introduced S. 1581. "When the states in general fail to meet any basic health or welfare problem, however, because of inability to finance a satisfactory method of dealing with it, the secondary obligation of the federal government comes into play, and it is the right of Congress to relieve the deficiencies of the states. This is a long way from proposing a 'welfare state,' in which government undertakes to supply all the wants of the people. We do not feel there is either a duty or a power to undertake such a program. In general, our constitutional form of government and the danger of centralization forces a clear distinction between federal participation and over-all federal control."

Dr. Magnuson's Views on Veterans' Hospital Cutback Disclosed

First official disclosure of views held by Dr. Paul B. Magnuson, chief medical director of the Veterans Administration, on President Truman's proposed retrenchment of hospital construction is contained in the printed hearings containing his testimony on the Veterans Administration's appropriation for 1950. In response to questions by members of the House, Dr. Magnuson said that he favors the following steps: transfer of the Dublin, Ga., hospital to Atlanta; the Fort Meade, S. D., hospital to Sioux City, Iowa, and the hospital at Knoxville, Iowa, to Iowa City; elimination or transfer of the hospitals at Marion, Ind., and Murfreesboro, Tenn.; shifting of the Roseburg, Ore., hospital to or near Portland; the Sheridan, Wyo., hospital to a point near Denver or Salt Lake City; the Togus, Maine, hospital to Portland; the Tomah, Wis., hospital to a place nearer a medical center in Minnesota or Wisconsin; the Excelsior Springs, Mo., hospital to Kansas City; the Fort Bayard, N. M., hospital to Albuquerque; the Outwood, Ky., hospital to Louisville; the Big Spring, Texas, hospital to a place near Houston; abolishment of the hospital at Dwight, Ill.; relocation of the Hot Springs, S. D., hospital somewhere in the state where there is the highest concentration of physicians; closing of the Iron Mountain, Mich., hospital; transfer of the hospital at Lake City, Fla., to Jacksonville, and relocation of the Poplar Bluff, Mo., hospital, at Springfield. Dr. Magnuson also advocated halting of construction on hospitals at Miles City, Mont.; Marlin, Texas, and Bonham, Texas.

Births Increasing as Infant Mortality Declines

Live births in this country last year totaled about 3,559,000, second largest figure on record, according to estimates by the National Office of Vital Statistics. At the same time statistics were made public showing 1947 to have had the lowest infant mortality rate in the nation's history. The number of births in 1948 was 4 per cent under the all time high of 3,699,940 in 1947. Registered and unregistered births combined were estimated at 3,715,000 for 1948 and 3,876,000 for 1947. In 1940, the last pre-war year, the corresponding figure was 2,558,000. Percentagewise, 1948's 24.4 births per 1,000 population was 5 per cent below the rate for 1947 (25.8) but surpassed the 1946 rate (23.3) by nearly 5 per cent.

Number of deaths under the age of 1 year recorded in 1947 was 119,173 compared with 111,063 for the previous year. However, the infant mortality rate declined from 33.8 deaths per 1,000 live births in 1946 to 32.2 in 1947, reflecting the increase in births. Provisional figures for 1948 indicate a further decline to 31.8. In 1947, for the first time, asphyxia and atelectasis ranked among the five leading causes of infant deaths, displacing diarrhea and enteritis.

National Mental Health Institute Established

Surgeon General Leonard A. Scheele on April 15 announced establishment of the National Institute of Mental Health and appointment of Dr. Robert H. Felix as its first director. The institute will assume duties formerly carried out by the mental hygiene division of the U. S. Public Health Service, which was headed by Dr. Felix, and will initiate an expanded program in research, training of personnel, development of community mental health facilities and improvement of clinical care. The National Advisory Mental Health Council will assist in formulation of policies for the new institute. Its headquarters will be in the Federal Security Building, pending completion of research and administration buildings at suburban Bethesda, Md.

Heart Council Appoints Advisory Committee

The National Advisory Heart Council, at its March meeting, appointed a standing committee to study and give counsel on control measures, as distinguished from the Council's other functions in passing on research grants and laboratory construction applications. Dr. T. Duckett Jones is chairman, and to serve with him are the following: Dr. F. C. Beelman, Kansas Board of Health; Miss Marjorie Bellows, American Heart Association; Dr. William H. Bunn, Youngstown, Ohio; Dr. Charles A. R. Connor, American Heart Association; Dr. C. Mayhew Derryberry, U. S. Public Health Service; Mrs. Ruth E. Lynch, Los Angeles County Tuberculosis and Health Association; Dr. H. M. Marvin, American Heart Association; Dr. C. Martin Mills, health officer, Richmond, Calif.; Miss Mary B. Moss, American Association of Medical Social Workers; Dr. David D. Rutstein, Harvard Medical School; Miss Marion Sheehan, University of California School of Nursing, and Dr. Estella Ford Warner, U. S. Public Health Service.

Ten Per Cent Increase in Veteran Patients Noted

Hospitalized veterans numbered 110,903 on January 31, compared with 100,350 on Dec. 31, 1948, according to the latest statistical summary issued by the Veterans Administration. With reference to the January 31 figure, 97,265 were patients in Veterans Administration hospitals and the remainder were in other types of institutions, both federal and nonfederal. At the end of January, 16,188 veterans were awaiting hospital admission, an increase of slightly more than 2,000 over the December total.

Medical Legislation

STATE LEGISLATION

California

Bill Introduced.—A. 2762 proposes certain amendments to the **narcotic drug law**, among which is a provision adding amidone® (methadone) to the definition of the term "Narcotics" and a provision providing that no physician or other person shall order, permit or direct any person other than a registered nurse or other physician to administer a narcotic to a person being treated for narcotic addiction.

Colorado

Bill Introduced.—S. 350, *to amend the* ***workmen's compensation law,*** proposes to require the furnishing to injured employees of dental treatment and services when necessary.

Illinois

Bills Introduced.—S. 297 proposes to amend the Illinois hospital construction act so as to include authorization for the construction of **public health centers.** S. 299 proposes a law for the regulation of the sale of the **sulfonamides, barbiturates, and amphetamine** to persons except on the prescription of a person licensed by law to prescribe and administer such drugs.

Kansas

Bills Enacted.—H. 200 was approved April 5, 1949. It provides for the licensing of **professional and practical nurses.** Practical nursing is defined as the performance for compensation, personal profit, or gratuitously by members of religious communities, of such duties as are required in the physical care of a convalescent, a chronically ill or an aged or infirm patient, and in carrying out such medical orders as prescribed by a licensed physician, requiring a knowledge of simple nursing procedures but not requiring the professional knowledge and skills required for professional nursing. H. 398 was approved April 5, 1949. It amends the hospital licensing law so as to include **mental hospitals.**

Maryland

Bill Enacted.—H. J. Res. 11 has become Resolution No. 7 of the Laws of 1949. It memorializes **the Congress of the United States** not to enact legislation that has been proposed the effect of which will be to bring the practice of medicine in this country under federal direction and control.

Michigan

Bill Introduced.—H. 383 proposes the creation of a **commission on alcoholism** to institute a program of public education on alcoholism as a disease, to study, investigate and make a survey of the problems of alcoholism in the state, and to make a report of its findings with recommendations to the Michigan legislature.

Missouri

Bill Introduced.—H. 264 proposes regulations for the licensing of **registered and practical nurses.** The proposal defines a licensed practical nurse as a person who for compensation or personal profit performs such duties as are required in the care of the sick, convalescent, chronically ill or aged or infirm patients, and in carrying out such medical orders as may be prescribed by a licensed physician, requiring knowledge of nursing procedures but not requiring the professional knowledge required for registered nursing.

Nevada

Bills Enacted.—A. 185 has become chapter 219 of the Laws of 1949. It is a hospital survey and construction act requiring the making of a **survey of existing hospital facilities** throughout the state. The state department of health is authorized to accept federal funds to assist in carrying out state survey, planning and construction activities and the governor is directed to appoint an advisory hospital council to assist the state department in carrying out the administration of the act. S. 47 has become chapter 241 of the Laws of 1949. It provides certain amendments to the existing law relating to **privileged communications.** Among other things, there is the provision that the bringing of an action to recover for the death of a patient by the executor of his will or by the administrator of his estate or by the surviving spouse or by the children personally shall constitute a consent to the testimony of any physician who attended such deceased. S. 53 has become chapter 245 of the Laws of 1949. It is an act to regulate the licensing of **registered professional nurses.** S. 69 has become chapter 149 of the Laws of 1949. It repeals and **reenacts the chiropody act** and, among other things, defines chiropody as the diagnosis and the medical, surgical, mechanical, manipulative and electrical treatment of all ailments of the human foot and leg not in connection with the practice of another licensed profession, excepting amputation of the foot or leg or the administration of an anesthetic other than local. Further definitions of "diagnosis," "medical treatment" "surgical treatment," "mechanical treatment," "manipulative treatment," and "electrical treatment" are included in the law. S. 111 has become chapter 169 of the Laws of 1949. It makes general amendments to the medical practice act, including the right to make **use of the injunctive process** against persons unlawfully practicing any branch of medicine, surgery, obstetrics or any other system of diagnosis or treatment without a license. S. 222 has become chapter 165 of the Laws of 1949. It provides an appropriation to be expended through the state board of health for the control, treatment, investigation, research and eradication of **rheumatic fever.**

New Hampshire

Bill Introduced.—S. 7 proposes the creation of a **board of registration in physical therapy** and defines physical therapy as the treatment of any person for compensation received or expected by physical means, including the use, alone or in combination, of massage, of heat, of light, of water, of electricity or by any laying on of the hands for the purpose of effecting the relief of any injury or physical ailment.

North Corolina

Bill Enacted.—H. 807 was ratified April 4, 1949. It authorizes the granting of **temporary licenses to chiropractic applicants,** which shall be effective until the next meeting of the board.

Ohio

Bill Introduced.—H. J. Res. 24 proposes to memorialize the Congress of the United States to refrain from enacting legislation providing for any form of socialized medicine.

Oklahoma

Bill Introduced.—S. 261 proposes that all persons who practice the healing art or any branch thereof shall report to the State Department of Health the name and address of any person under their care who is **afflicted with epilepsy,** mental disease or any other disease which brings on momentary lapse of consciousness.

Pennsylvania

Bills Introduced.—H. 1318 proposes to prohibit the sale of **benzedrine inhalers** or any other benzedrine derivatives without a prescription. S. 784 proposes to prohibit the **unauthorized possession of penicillin** by any person but would provide that persons having the drug in their possession for their own personal use when obtained in good faith from a duly licensed physician or dentist pursuant to a prescription given therefor shall not be covered by the act. S. 785 proposes to **prohibit the possession of any hypnotic drug** or analgesic or body-weight-reducing drug by any person except on prescription from a duly licensed physician. S. 824 proposes the creation of a **board of naturopathic examiners** and defines naturopathy as a philosophy of healing embodying within itself a complete system of therapeutics basing its treatment of all physiologic disfunctions and abnormal conditions of the body on the natural laws governing the body and maintaining life. This system includes the correlation of part with part anatomically, physiologically, psychologically and chemically. It is the treatment of the body by any movements, adjustments or manipulations performed by the hands or by any instruments or appliances and the use of any physical forces such as air, light, water, heat, electricity or any of their derivatives. Naturopathic dietetics and the use of foods of such biochemical tissue-building products and cell salts as are found in the normal body and vitamin deficiencies in the body or any other system of therapeutics correlated with these therapeutic measures or the use of herbs and plants and their derivations administered, applied, prescribed or dispensed. S. 826 proposes the creation of a state **board of naturopathic examiners** as a new departmental administrative board. S. 834 and S. 835, to amend the law relating to prepaid medical service plans, propose to authorize the organization of **prepaid dental service corporations.**

Rhode Island

Bills Introduced.—H. 904 proposes the enactment of a **hospital licensing law.** H. 906 proposes the enactment of a licensing law **for maternity hospitals.**

South Carolina

Bill Introduced.—H. 1420 proposes the creation of a hospital for the treatment, care and rehabilitation of **alcoholic persons.**

Washington

Bills Enacted.—H. 157 has become chapter 239 of the Laws of 1949. It creates an **examining committee of physical therapists** and defines physical therapy as the treatment of any bodily or mental condition of any person by the use of the physical, chemical and other properties of heat, light, water, electricity, massage and therapeutic exercise, which includes posture and rehabilitation procedures. The use of roentgen rays and radium for diagnostic and therapeutic purposes and the use of electricity for surgical purposes, including cauterization, are not authorized under the term "physical therapy" as used in this act. A physical therapist is a person who practices physical therapy as defined in this act under the prescription, supervision and direction of a person licensed to practice medicine and surgery. S. 31 has become chapter 197 of the Laws of 1949. This law is a hospital survey and construction act requiring a **survey of existing hospital facilities** and the creation of a construction program for the construction of new needed facilities. The law provides for the creation of an Advisory Hospital Council and authorizes the director of public health to make regulations and minimum standards for the maintenance and operation of hospitals constructed under the state plan which received federal aid for such construction. H. 373 has become chapter 149 of the Laws of 1949. It requires state agencies, commissions, etc., to accept the services of **licensed optometrists** on the same basis as other practitioners entitled to render similar services.

Wisconsin

Bills Introduced.—A. 334 proposes to authorize **dog pounds throughout the state** to dispose of unredeemed live dogs to the University of Wisconsin, Marquette University or any other educational institution of higher learning accredited to the university on requisition by such institution in writing if the requisition is for scientific or educational purposes. A. 623 proposes to exempt from execution the **professional equipment of any physician,** surgeon, dentist optometrist, oculist, osteopath or chiropractor used or kept for the purpose of carrying on his profession, not exceeding $500 in value and also $500 worth of office furniture or such men. A. 642 proposes that after January 1950, **osteopathic and medical applicants** shall be given the same examination and permitted the same scope of practice.

Coming Medical Meetings

American Medical Association, Atlantic City, June 6-10. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

American Academy of Tuberculosis Physicians, Atlantic City, Hotel Dennis, June 4. Dr. Oscar S. Levin, P. O. Box 7011, Denver 6, Colo., Secretary.

American Association of Genito-Urinary Surgeons, White Sulphur Springs, W. Va., Greenbrier Hotel, May 9-11. Dr. Norris J. Heckel, 122 S. Michigan Ave., Chicago 3, Secretary.

American Association of the History of Medicine, Lexington, Ky., May 23-24. Dr. Benjamin Spector, 416 Huntington Ave., Boston 15, Secretary.

American Association on Mental Deficiency, New Orleans, Hotel Roosevelt, April 27-30. Dr. Neil A. Dayton, Box 51, Mansfield Depot, Conn., Secretary.

American College of Radiology, Atlantic City, Chalfonte-Haddon Hall, June 5. Mr. William C. Stronach, 20 N. Wacker Drive, Chicago 6, Secretary.

American Dermatological Association, Hot Springs, Va., May 23-26. Dr. Louis A. Brunsting, 102 Second Ave. S.W., Rochester, Minn. Secretary.

American Gastro-Enterological Association, Atlantic City, Claridge Hotel, June 3-4. Dr. Dwight L. Wilbur, 655 Sutter Street, San Francisco 2, Secretary.

American Goiter Association, Madison, Wis., Hotel Loraine, May 26-28. Dr. Thomas C. Davison, 478 Peachtree St., N.E., Atlanta 3, Ga., Secretary.

American Laryngological Association, New York, May 16-17. Dr. Louis H. Clerf, 1530 Locust St., Philadelphia, Secretary

American Neurological Association, Atlantic City, June 13-15. Dr. H. Houston Merritt, 710 W. 168th St., New York 32, Secretary.

American Ophthalmological Society, Hot Springs, Va., The Homestead, June 2-4. Dr. Maynard C. Wheeler, 30 W. 59th St., New York, Secretary.

American Orthopedic Association, Colorado Springs, May 18-21. Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secretary.

American Otological Society, New York, May 18-19. Dr .Gordon D. Hoople, 713 E. Genesee St., Syracuse, N. Y., Secretary.

American Pediatric Society, Atlantic City, May 5-6. Dr. Henry G. Poncher, 1819 W. Polk St., Chicago 12, Secretary.

American Proctologic Society, Columbus, Ohio, May 31-June 4. Dr. W. Wendell Green, 1838 Parkwood Ave., Toledo 2, Ohio, Secretary.

American Psychiatric Association, Montreal, Canada, May 23-27. Dr. Leo H. Bartemeier, General Motors Bldg., Detroit 2, Secretary.

American Radium Society, Atlantic City, June 5. Dr. Hugh F. Hare, 605 Commonwealth Ave., Boston 15, Secretary.

American Society for Clinical Investigation, Atlantic City, May 2. Dr. Paul B. Beeson, Grady Hospital, Atlanta 3, Georgia, Secretary.

American Society for Research in Psychomatic Problems, Atlantic City, Chalfonte-Haddon Hall, April 30-May 1. Dr. Sydney G. Margolis, 714 Madison Ave., New York 24, Executive Secretary.

American Therapeutic Society, Atlantic City, June 2-5. Dr. Oscar B. Hunter, 915 Nineteenth St. N.W., Washington, D. C., Secretary.

American Urological Association, Los Angeles, Hotel Biltmore, May 16-19. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secretary.

Arizona State Medical Association, Tucson, May 8-10. Dr. Frank J. Milloy, 15 E. Monroe St., Phoenix, Secretary.

Association for the Study of Internal Secretions, Atlantic City, June 3-4. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary.

Association of American Physicians, Atlantic City, May 3-4. Dr. Henry M. Thomas Jr., 1201 N. Calvert St., Baltimore 2, Secretary.

California Medical Association, Los Angeles, May 8-11. Dr. L. Henry Garland, 450 Sutter St., San Francisco 8, Secretary.

Connecticut State Medical Society, New Britain, State Teachers' College, May 3-5. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.

Georgia, Medical Association of, Savannah, Hotel De Soto, May 10-13. Dr. Edgar D. Shanks, 478 Peachtree St., N.E., Atlanta, Secretary.

Hawaii Territorial Medical Association, Honolulu, May 5-8. Dr. Harry L. Arnold Jr., 510 S. Beretania St., Honolulu, Secretary.

Illinois State Medical Society, Chicago, Palmer House, May 16-18. Dr. Harold M. Camp, 224 S. Main St., Monmouth, Secretary.

International Congress on Rheumatic Diseases, New York, Hotel Waldorf-Astoria, May 30-June 3. *Dr. Philip S. Hench,* Mayo Clinic, Rochester, Minn., Chairman, American Committee.

Kansas Medical Society, Topeka, May 9-12. Dr. D. D. Vermillion, 512 New England Bldg., Topeka, Secretary.

Louisiana State Medical Society, New Orleans, May 5-7. Dr. P. T. Talbot, 1430 Tulane Avenue, New Orleans 13, Secretary.

Maryland, Medical and Chirurgical Faculty of the State of, Baltimore, April 26-27. Dr. George H. Yeager, 1211 Cathedral St., Baltimore 1, Secretary.

Massachusetts Medical Society, Worcester, May 24-27. Dr. H. Quimby Gallupe, 8 Fenway, Boston 15, Secretary.

Minnesota State Medical Association, St. Paul, Municipal Auditorium, May 9-11. Dr. B. B. Souster, 496 Lowry Medical Arts Bldg., St. Paul 2, Secretary.

Mississippi State Medical Association, Biloxi, May 10-12. Dr. T. M. Dye, Box 295, Clarksdale, Secretary.

National Tuberculosis Association, Detroit, May 2-6. Dr. H. Stuart Willis, 1790 Broadway, New York 19, Secretary.

Nebraska State Medical Association, Omaha, Hotel Paxton, May 2-5. Dr. R. B. Adams, 1315 Sharp Building, Lincoln 8, Nebraska, Secretary.

New Hampshire Medical Society, Newcastle, Hotel Wentworth, June 14-15. Dr. Carleton R. Metcalf, 5 S. State St., Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, Hotel Ambassador, April 25-28. Dr. Earl L. Wood, 315 W. State St., Trenton 8, Secretary.

New Mexico Medical Society, Roswell, May 5-7. Dr. H. L. January, 221 W. Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, Buffalo, Hotel Statler, May 2-6. Dr. Walter P. Anderton, 292 Madison Ave., New York 17, Secretary.

North Carolina, Medical Society of the State of, Pinehurst, The Carolina, May 9-11. Dr. Roscoe D. McMillan, P. O. Box 232, Red Springs, Secretary.

North Dakota State Medical Association, Minot, May 14-17. Dr. O. A. Sedlak, 702 First Ave. S., Fargo, Secretary.

Oklahoma State Medical Association, Tulsa, Mayo Hotel, May 15-19. Mr. R. H. Graham, 210 Plaza Court Bldg., Oklahoma City, Secretary.

Rhode Island Medical Society, Providence, May 11-12. Dr. Morgan Cutts, 106 Francis St., Providence 3, Secretary.

Society for Investigative Dermatology, Atlantic City, Ritz Carlton Hotel, June 11-12. Dr. S. William Becker, 55 E. Washington St., Chicago 2, Secretary.

Society of American Bacteriologists, Cincinnati, May 15-20. Dr. John Blair, Hospital For Joint Diseases, New York, Secretary.

Society of Biological Psychiatry, Atlantic City, Chalfonte-Haddon Hall, June 12. Dr. George N. Thompson, 1136 W. Sixth St., Los Angeles, Secretary.

South Dakota State Medical Association, Yankton, May 22-24. Dr. Roland G. Mayer, 22½ S. Main St., Aberdeen, Secretary.

Southeastern Surgical Congress, Biloxi, Miss., May 23-26. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Ga., Secretary.

Texas, State Medical Association of, San Antonio, May 2-5. Dr. Harold Williams, 700 Guadalupe St., Austin, Secretary.

Western Association of Industrial Physicians and Surgeons, Los Angeles, Hotel Biltmore, May 7. Dr. Christopher Leggo, Crockett, Calif., Secretary.

Western Branch of American Public Health Associaiton, Los Angeles, Hotel Biltmore, May 30-June 1. Mr. Walter S. Mangold, University of California, Berkeley, Calif., Secretary.

GOVERNMENT SERVICES

ARMY

OFFICERS ACCEPTED FOR ADVANCE TRAINING

The following additional Medical Department officers have been accepted for advanced training in the civilian schools and hospitals indicated:

William E. Wilkinson, Col.	Duke University, Durham, N. C.	Psychiatry
Don Flickinger, Col.	University of Pennsylvania Graduate School of Medicine, Philadelphia	Physiologic basis for internal medicine
George H. Donnelly, Col.	New York University–Bellevue Medical Center, New York	Surgical anatomy as applied to operative gynecology
Francis E. Barry, Capt.	Saint Francis Hospital, Wichita, Kan.	Obstetrics and gynecology
Walden R. Smith, Capt.	Louisville General Hospital, *Louisville, Ky.*	Anesthesiology
James A. Reilly Jr., First Lieut.	Bellevue Hospital, New York	Neurology
Robert W. Saunderson Jr., First Lieut.	Medical College of Virginia, Richmond	Pediatrics
Albert R. Jones Jr., First Lieut.	Maryland General Hospital, Baltimore	Obstetrics and gynecology
John Watt Jr., First Lieut.	Johns Hopkins Hospital, Baltimore	Obstetrics and gynecology
Glenn R. Weygandt, First Lieut.	University of Chicago Clinics, Chicago	Anesthesiology
Robert E. Baird, First Lieut.	Providence Hospital, Seattle	Pathology
John C. Wilsey, First Lieut.	Bellevue Hospital, New York	Surgery
William J. Blake, First Lieut.	Grace–New Haven Community Hospital, New Haven, Conn.	Pathology
Frank W. Little, First Lieut.	The Roosevelt Hospital, New York	Medicine
Edward J. Tomsovic, First Lieut.	Bellevue Hospital, New York	Pediatrics

VALLEY FORGE HOSPITAL AND THE GRADUATE TRAINING PROGRAM

The Surgeon General announces that beginning July 1 the Valley Forge Army General Hospital at Phoenixville, Pa., will participate in the Graduate Professional Education Program, bringing the number of hospitals participating in this program to nine and opening a new source of training to young physicians interested in the Army intern program.

The military intern program offers graduate training opportunities to selected graduates of medical schools approved by the American Medical Association. Successful graduates are assigned to Army general hospitals which are approved for such teaching by the Council on Medical Education and Hospitals. Three hundred internships are available yearly. Appointments begin on July 1 and terminate July 30 the following year. After receipt of their commissions as reserve first lieutenants, successful appointees are called to active duty with full pay and allowances and later are offered the opportunity to apply for Regular Army Medical Corps commissions. As of March 14 there were 113 military interns on duty in Army training hospitals, with 232 new men selected to begin July 1.

THEATER AT WALTER REED HOSPITAL

Ground was broken March 17 marking the construction of a new theater which will be connected with Walter Reed General Hospital by an enclosed ramp enabling patients to go from any place in the hospital without going outside. The theater will have a seating capacity of 500 and a large stage under which will be dressing rooms to enable the staging of "live shows." The theater is expected to be completed in November at a cost of about $220,000.

MONTHLY MEDICAL MEETING

The use of anticoagulants in coronary occlusion was discussed by Dr. Irving S. Wright, New York, guest speaker at the regular monthly Surgeon General's medical meeting at Walter Reed Hospital, March 17. Dr. Wright is a consultant in medicine to the Secretary of War and chief consultant in cardiovascular diseases for the Veterans Administration. During the war he was chief of medical service at the Army and Navy Hospital at Hot Springs, Ark.; now he is associate professor of clinical medicine, Post Graduate Hospital, Columbia University College of Physicians and Surgeons.

NAVY

FIRST ACTIVE DUTY

The following reserve medical officers have been nominated for their first active duty: Comdr. David P. Cordray, of Haverford, Pa., to the Naval Hospital, Great Lakes, Ill.

The following lieutenants (jg) have been assigned, as follows: Ernest M. Dixon, South Roanoke, Va., to the Naval Hospital, Portsmouth, Va.; Samuel H. Gainer, Dallas, Texas, to the Naval Hospital, Bremerton, Wash.; Norman E. Graham, Miller, S. D., to the Naval Air Technical Training Center, Memphis, Tenn.; Ralph Haas Jr., Clarkston, Wash., to Puget Sound Naval Shipyard, Bremerton, Wash.; Donald C. Kent, Wahoo, Neb., to the Naval Hospital, Bremerton, Wash.; Edward E. Longabaugh, Pittsburgh, to the Naval Hospital, Chelsea, Mass.; John M. Mimms, New York, to the Naval Air Technical Training Center, Memphis, Tenn.; Russell R. Redlin, Milwaukee, to Puget Sound Naval Shipyard, Bremerton, Wash.; William C. Sharp, Knoxville, Tenn., to a residency in pathology at the Naval Hospital, Philadelphia, and Richard N. Wrenn, Anderson, S. C., to the Naval Hospital, Charleston, S. C.

Three Reserve medical officers have been voluntarily recalled to active duty. They are: Comdr. Chester F. Johnson, Oakland, Calif., to Mare Island Naval Shipyard, Vallejo, Calif.; Lieut. Comdr. Joseph C. Pinto, Mt. Ephraim, N. J., to the Naval Air Station, Corpus Christi, Texas, and Lieut. Charles K. Holloway Jr., Grants Pass, Ore., to a residency in surgery at the Naval Hospital, Oakland, Calif.

NEW REGULAR OFFICERS

The following medical officers have been transferred from an active Reserve status to the Regular Navy Medical Corps: Comdr. Broor A. Johnson, San Diego, Calif.; Lieut. John H. Stover Jr., North Arlington, N. J.; Lieut. (jg) Arthur J. Blanchard, Toledo, Ohio; Lieut. (jg) Leon W. Clark, Houston, Texas, and Lieut. (jg) Duncan O. Montgomery, Campbellton, Texas.

Dr. Gioconda R. Saraniero, Brooklyn, has accepted an appointment in the grade of lieutenant, and will report to the Naval Hospital, St. Albans, N. Y., for her first active duty.

The following reserve officers on active duty have been appointed to the Regular Navy Medical Corps: Lieut. Comdr. William M. Crafft of Chicago; Lieut. Carl E. Pruett of Kinmundy, Ill., and Lieut. (jg) Robert H. Lemmon of Lincoln, Neb.

The following lieutenants (jg) in the Medical Corps Reserve now on active duty have elected to transfer to the Regular Navy Medical Corps: Francis X. MacAulay, Westminster, Mass.; Harry L. Roberts, Longmeadow, Mass.; Frederick W. Shillinger, Highland, Md., and James B. Smith, New York.

PERSONAL

Capt. Anselm C. Hohn, M.C., on duty at the Naval Hospital, Oakland, Calif., was recently certified by the American Board of Ophthalmology.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ALABAMA

Society Election.—The newly organized Alabama Academy of General Practice, a constituent chapter of the American Academy of General Practice, at the initial meeting of the group held in Montgomery elected the following officers: Drs. George S. Peters, Montgomery, president; J. Paul Jones, Camden, president elect, and Elmer J. Kocour, Montgomery, treasurer.

CONNECTICUT

Physician-Dentist Committee.—Dr. Robert J. Hansell, Greenwich, was recently elected chairman of a new joint committee of physicians and dentists sponsored by the Connecticut State Medical Society and the Connecticut State Dental Association. The committee will study medical and dental problems and recommend policies for maintaining high standards of patient care.

Silver Hill Foundation Clinic.—The Silver Hill Foundation, New Canaan, entertained seventy-five members of the American College of Physicians on April 2 at a lecture clinic. Dr. William B. Terhune, medical director of the foundation, spoke on "Basic Principles of Brief, Practical Psychotherapy"; Dr. Franklin S. DuBois, associate medical director, on "Description of Reeducational Methods and Applicability," and Dr. Robert B. Hiden presented a case history. A question and discussion period followed.

Group to Study Mental Program.—An advisory committee of leaders in the fields of psychiatry, health, juvenile problems, social work and education to plan expansion of Connecticut's mental health program has been appointed by Dr. Stanley H. Osborn, state health commissioner. Funds to expand the state program will be available under the provisions of the National Mental Health Act. Dr. Elias J. Marsh Jr., Hartford, acting director of the Connecticut State Department of Health's Bureau of Mental Hygiene, will direct the expansion program. The new committee is made up of the following: Dr. George K. Pratt, Hall-Brooke Sanitarium, Westport; Dr. Frederick C. Redlich and Ira V. Hiscock, M.A., Yale University School of Medicine, New Haven; Drs. Edgar C. Yerbury, Connecticut State Hospital, Middletown; Alfred L. Burgdorf, Hartford health officer; Judge Thomas D. Gill, State Juvenile Court; Miss Dorothy Baker, New Haven Family Service; Mildred Stanton, State Department of Education, and Mr. Wilmot T. Fiske, Bridgeport Mental Hygiene Society.

ILLINOIS

Mental Hygiene Society Honors Members.—The Illinois Society for Mental Hygiene conferred honorary vice presidencies on two members, Mrs. George Dean and Dr. Ralph C. Hamill, at its recent annual meeting. Mrs. Dean has served the society for thirty years as a member, director and vice president. Dr. Hamill has been with the organization since it was founded in 1910, is a past president and is now chairman of the children's commission.

Chest Physicians Meeting.—The Illinois Chapter of the American College of Chest Physicians will hold its annual meeting May 15 at the Palmer House, Chicago, beginning at 2 p. m. Visiting speakers will be:

Thomas H. Burford, St. Louis, Decortication of the Lung in Treatment of Empyema.
Leo G. Rigler, Minneapolis, Diseases of the Lung of Vascular Origin.
Andrew L. Banyai, Milwaukee, Pulmonary Manifestations of Sarcoidosis.
William M. Tuttle, Detroit, Diagnosis and Treatment of Chronic Suppurating Pneumonitis.
John V. Thompson, Indianapolis, Cavernostomy.

All physicians are invited, and there will be no registration fee.

Health Education Telecasts.—The weekly series of telecasts on health education, launched in December by the Educational Committee of the Illinois State Medical Society, are to present the following programs:

April 26, Robert G. Kesel, D.D.S., and Donald Kerr, D.D.S., Your Child's Dental Care.
May 3, Charles D. Krause, Chicago, So You're Going to Have a Baby.
May 10, Gilbert H. Marquardt, Chicago, This Business of Growing Old.
May 17, Maurice H. Cottle, Chicago, If Your Nose Needs Repair.
May 24, Howard B. Carroll, Chicago, Taking Care of Your Ulcers.

The programs are held on Tuesdays at 3:30 p. m. and are conducted by Dr. Theodore R. Van Dellen. In all programs charts, models, patients and demonstrations are used to convey a health message graphically.

Chicago

Lecture on Indian Medicine.—The Society of Medical History of Chicago will meet in the assembly room of the Institute of Medicine April 26 at 8 p. m. to hear Dr. G. V. S. Murthi, clinical professor of medicine, Madras Medical Service, Madras, India, speak on "Ancient Indian Medicine."

Wins Gibbs Medal.—Professor Peter J. W. Debye, Ph.D., Cornell University, New York, has been awarded the 1949 Willard Gibbs Medal of the Chicago Section of the American Chemical Society. Professor Debye, the 1936 Nobel prize winner in chemistry, is active in the development of light scattering.

Course in Endocrinology.—On April 4 a weekly one hour postgraduate course on various aspects of endocrinology opened at the Walther Memorial Hospital. Participants in the course, which will be held every Monday morning from 8 to 9 through June, are Drs. James H. Hutton, I. Pat Bronstein and Charles D. Krause.

Meeting on Nutrition.—The Chicago Nutrition Association is sponsoring a meeting at the Congress Hotel May 11. Dr. Edward J. Stieglitz, chief of the section on gerontology of the National Institutes of Health, Bethesda, Md., will speak on "Aging as a Problem in Nutrition." Dr. Arthur F. Abt, Northwestern University Medical School, will discuss the paper.

Radio Health Series Receive National Awards.—The Chicago Industrial Health Association's radio health series "It's Your Life" has received three national awards since it was aired October 18, 1948 under the sponsorship of Johnson and Johnson. The first award was presented to Johnson and Johnson at the Waldorf-Astoria Hotel in New York on March 4 and consisted of a bronze medal representing the Annual Advertising Award for 1948 for "Outstanding Contribution to Radio as a Social Force." On March 30 the City College of New York, through its School of Business and Civic Administration, awarded a plaque "For the Creation of the Outstanding Radio Program of 1948." The radio series will also receive the Award of Merit for "The Creation of the Most Effective Institutionally Sponsored Radio Program During 1948 by a 50-Kilowatt Station." This award is also made by the City College of New York. The series appears on WMAQ, Chicago, five days a week at 11:15 a. m.

IOWA

Personal.—Dr. Stephen F. Nagyfy, assistant professor of obstetrics and gynecology at the Ohio State University College of Medicine, Columbus, since January 1946, has resigned to accept a hospital position in Johnson City, N. Y.

Study of Vitamin K Deficiency.—Dr. Kirsten U. Athein-Toverud of Oslo, Norway, has been selected to direct an extensive research project at the State University of Iowa hospitals in the relationship of vitamin K deficiency to brain injury at birth. Dr. Toverud in 1939 became director of the first municipal health center in Oslo, which has a death rate figure of 11.7 for each 1,000 live births as compared to Iowa's 28 to 30.

KENTUCKY

Dedicate Nursery to Dr. Matthews.—The Breckenridge Lodge of Masons dedicated a nursery at the Breckenridge County Memorial Hospital in Hardinsburg to the late Dr. Joseph E. Matthews of Harned February 5. The nursery is equipped with an incubator and ten beds. The hospital was opened in December 1947 and the nursery is one of its most used rooms.

Rabies Control Program.—The Louisville and Jefferson County Board of Health held a meeting of government, health, civic and press representatives March 29, to effect a program of rabies control and bring further attention to the problem of stray dogs in Louisville and Jefferson County. Of the estimated 50,000 dogs within the county limits only 4,000 were vaccinated against rabies and only 2,800 were licensed during 1948. At Louisville General Hospital last year 541 animal specimens were examined, and 404 dogs were found to be carriers of rabies.

Narcotic Violation.—The Bureau of Narcotics, Washington, D. C., reports that Dr. John T. Davis of Louisville pleaded guilty to violation of the Federal Narcotic Law in the U. S. District Court at Louisville, November 1, 1948. His sentence of one year and one day was suspended, and he was placed on probation for a period of three years, with the provision that he surrender his special tax stamp and never apply for reregistration under the federal narcotic law.

LOUISIANA

Dr. Frye Appointed Dean at Louisiana State.—Dr. William W. Frye, assistant director, division of graduate medicine, Tulane University of Louisiana School of Medicine, has been appointed dean of Louisiana State University School of Medicine, effective May 1. Dr. Frye received his M.S. and Ph.D. degrees from Iowa State College, Iowa City. Since last July he has been professor of tropical medicine and public health at Tulane University. He has studied tropical diseases in Central America and China and served as special consultant to the U. S. Public Health Service from 1946 to 1948. He received his M.D. degree from Vanderbilt University, Nashville, where he was associate professor of preventive medicine and public health. He became chairman of the department of preventive medicine in 1945 and was made director of the newly established school of public health a year later.

MINNESOTA

Half Million Dollars for Medical Research.—The University of Minnesota will receive a gift of approximately $500,000 for medical research from the estate of Silas McClure, Minneapolis businessman who died February 16. The university had previously been granted funds by Mr. McClure in memory of his wife, Katherine Esgen McClure.

Organize Internist's Society.—The Minneapolis Society of Internal Medicine held its first meeting March 9. It is composed of some seventy physicians, private practitioners as well as full time specialists in chest diseases. Bimonthly meetings will be held in the rooms of the Hennepin County Medical Society. Newly elected officers are Drs. Reuben A. Johnson, president; George N. Aagaard, secretary, and Harold E. Miller, treasurer.

Dr. Hinshaw Goes to California.—Dr. H. Corwin Hinshaw, associate professor of medicine at the Mayo Foundation, Rochester, became clinical professor of medicine at Stanford University School of Medicine, Stanford University–San Francisco, on April 1. Dr. Hinshaw has been associated with the Mayo Foundation since his graduation from the University of Pennsylvania School of Medicine in Philadelphia, 1933. He is now president of the American Trudeau Society.

NEBRASKA

Annual State Medical Meeting.—The Nebraska State Medical Association will hold its annual session at the Hotel Paxton, Omaha, May 3-5 under the presidency of Dr. James E. M. Thomson, Lincoln. Groups from Northwestern University Medical School, Chicago; Tulane University of Louisiana School of Medicine, New Orleans, and Western Reserve University School of Medicine, Cleveland, will offer individual papers and panel discussions on a variety of subjects. A symposium on "World Medical Affairs" will be held Wednesday afternoon, the speakers being Drs. Ernest E. Irons, President-Elect, American Medical Association, Chicago; James R. McVay, Kansas City, and Joseph S. Lawrence, Washington, D. C. Another symposium on "State Medical Affairs" is scheduled for Thursday afternoon with Dr. Floyd Rogers, Lincoln, chairman. The Woman's Auxiliary to the association will meet May 2-5.

NEW JERSEY

Public Health Appointment.—Dr. Edward J. Humphreys, chief of the Bureau of Prevention and Education, Division of Mental Hygiene, State of Ohio, was appointed deputy commissioner of the New Jersey State Department of Institutions and Agencies, effective March 1. He is administering the mental hygiene program of the department. Dr. Humphreys is president of the American Association of Mental Deficiency.

Annual Amputee Conference.—Under the sponsorship of state and national groups, the Kessler Institute for Rehabilitation, West Orange, will hold its annual Amputee Conference April 25-29. The program includes the physiology and surgery of amputation, how to take care of stumps and the fitting of prostheses. Time will be given to the discussion of psychologic preparation of amputees and to their training in the use of the prostheses.

Dr. Rake to Direct Squibb Institute.—Dr. Geoffrey W. Rake has been promoted to director of the Squibb Institute for Medical Research, New Brunswick, succeeding Dr. James A. Shannon, who resigned to become associate director in charge of research at the National Heart Institute, Bethesda, Md. Educated in England, Dr. Rake came to this country after serving at Guy's Hospital, London. He became assistant and instructor in pathology at Johns Hopkins University, Baltimore, leaving to go to the Rockefeller Institute in 1931. He was research associate at the Connaught Laboratories in Toronto, whence he came to Squibb in 1937. Dr. Rake has been head of the institute's Division of Microbiology since its founding.

NEW YORK

Postgraduate Course in Rheumatic Fever.—The St. Francis Sanatorium for Cardiac Children, Roslyn, Long Island, will give a postgraduate course in rheumatic fever and rheumatic heart disease June 1-14. The course consists of informal lectures and discussions, supplemented by examination and study of patients demonstrating clinical phases. Application should be submitted before May 1. The fee for the course is $75, and attendance is limited.

Postgraduate Lectures.—The Medical Society of the State of New York with the cooperation of the New York State Department of Health has arranged the following postgraduate lectures: The staff of Rome Hospital, Rome, will hear Dr. Wardner D. Ayer, Syracuse, speak on "Neurology in General Practice," April 19 at 8 p. m. At the Fulton County Medical Society meeting April 21 at 9 p. m. at the Eccentric Club, Gloversville, Dr. Emil Granet, New York, will speak on "Progress in the Management of Anorectal Lesions." On April 26 the Nassau County Medical Society will hear Dr. Edward J. Sharkey, Albany, lecture on "Use of Radioactive Isotopes in Tumor Localization" at the Cathedral House, Garden City, at 8:30 p. m.

State Medical Society Annual Meeting.—The Medical Society of the State of New York will hold its annual meeting at the Hotel Statler in Buffalo May 2-6 under the presidency of Dr. Leo F. Simpson, Rochester. The general session program is made up of two symposiums, one on the Control of Pain and the other on Surgical Treatment of Heart Disease. The last includes the A. Walter Suiter Lecture by Dr. Claude S. Beck, Cleveland, on "Recent Advances in the Surgical Restoration of the Coronary Circulation." The remainder of the program will be devoted to eighteen section meetings. Guest speaker at the annual banquet Wednesday evening will be Dr. Morris Fishbein, Editor, THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Chicago, whose subject will be "Medicine's Progress and Hope." The society's Council Committee on Public Health and Education and the state department of health have arranged a Teaching Day for May 3. A panel discussion on Medical Care Insurance Plans and a symposium on Adult Heart Disease are included. A series of scientific motion pictures will be shown each day beginning May 3, and technical and scientific exhibits will be on display. The Woman's Auxiliary will hold its convention May 1-4, and the Women's Medical Society of New York State will hold its annual meeting May 1-2.

New York City

Special Society Meeting.—Dr. Harry E. Ehrlich will read a paper on "Surgical Treatment of Cancer of the Gum" at the monthly conference of the New York Institute of Clinical Oral Pathology April 25 at the New York Academy of Medicine at 9 p. m.

Fourth Joachim Lecture.—The fourth of the series of Dr. Henry Joachim Lectures on the Application of Fundamental Sciences in Medicine will be delivered by Melvin H. Knisely, Ph.D., chairman of the department of anatomy at the Medical College of the State of South Carolina, Charleston, on "Sludged Blood and Its Clinical Implications." The lecture will be held April 27 at 8:45 p. m. in the auditorium of the Jewish Sanitarium and Hospital for Chronic Diseases in Brooklyn.

Meeting on Military Medicine.—A meeting under the joint sponsorship of the Metropolitan Chapter of the Association of Military Surgeons of the United States and the New York Academy of Medicine will be held at the academy May 17 at 8:30 p. m. Speakers will be Rear Admiral Joel T. Boone, M.C., U. S. Navy; Major General Raymond W. Bliss, Surgeon General, U. S. Army; Major General Malcolm C. Grow, Air Surgeon, U. S. Army, and Rear Admiral H. Lamont Pugh of the U. S. Navy, deputy and assistant chief of the Bureau of Medicine and Surgery.

Open Second Nutrition Clinic.—The second nutrition clinic of the city's department of health was opened in Brooklyn on April 6. It will offer a consultation, diagnostic and follow-up service to children over 6 and others in low income groups who are suspected of having nutritional abnormalities. Patients may be referred to the clinic by their private physicians, by the school health or other health department services, other clinics or welfare organizations. Special emphasis will be given to the nutritional problems of children and expectant mothers. Dr. Robert W. Hillman is physician in charge. Dr. Hillman received his M.D. degree from the Long Island College of Medicine in 1938 and served with the Navy Medical Corps 1942-1946.

NORTH CAROLINA

Dr. Davison Visits Tokyo.—Dr. Wilburt C. Davison, dean of Duke University School of Medicine, Durham, left in March for a month's duty in Tokyo as a consultant to the U. S. Army Surgeon General. Dr. Davison will assist and advise the Far East theater surgeon and hospital staffs in the treatment of patients. Clinics, ward rounds, lectures and teaching functions make up his duties.

Sesquicentennial Meeting of State Association.—The Medical Society of the State of North Carolina will celebrate its sesquicentennial at the annual session in Pinehurst May 9-11 with headquarters at the Carolina. Invited speakers on the general program include:

Samuel F. Marshall, Boston, Cancer of the Breast.
Augustus S. Rose, Boston, Treatment of Neurosyphilis.

On Wednesday a panel discussion will be held on "The Medical Profession's Present-Day Health Problems" with Dr. Paul F. Whitaker, Kinston, as moderator. The banquet will take place Tuesday evening at 7 p. m. Dr. James F. Robertson, Wilmington, will deliver the presidential address and Dr. Hubert A. Royster, Raleigh, will speak on "A Century and a Half of Medicine in North Carolina." The guest speaker will be Dr. Hugh J. Morgan, Nashville, Tenn., whose subject will be "Then and Now." At the Officers' Breakfast May 10 a symposium will be conducted on "The Job of the County and the District Medical Societies" with Dr. Joseph S. Hiatt Jr., McCain, as moderator. Various sections meetings will be held, and alumni luncheons are scheduled for Tuesday.

OHIO

Workshop in Public Health.—A meeting on the education of the public on matters of health, in connection with the nineteenth Institute for Education by Radio will be held at the Deshler Wallick Hotel, Columbus, May 8 under the leadership of Dr. Jonathan Forman, editor of the *Ohio State Medical Journal*, Columbus. Those interested may write the institute at Ohio State University, Columbus 10.

Knudsen Award to Dr. Kehoe.—For performing the outstanding work of the year in the field of industrial medicine, Dr. Robert A. Kehoe, professor of industrial medicine at the University of Cincinnati College of Medicine, received the Knudsen Award of the American Association of Industrial Physicians and Surgeons at its annual convention in Detroit on April 7. Dr. Kehoe, a member of the faculty since 1919, is head of the department of preventive medicine and industrial health, director of the Kettering Laboratory of Applied Physiology and Institute of Industrial Health of the university. He was cited for his "broad vision in the field of industrial health and especially in sensing the importance of various sciences" and for the promotion of adequate postgraduate training in industrial medicine. The Knudsen Award was established in 1938 through the late General William Knudsen of the General Motors Corporation.

OKLAHOMA

Annual Meeting of State Association.—The Oklahoma State Medical Association will hold its annual meeting at the Mayo Hotel, Tulsa, May 16-18 under the presidency of Dr. Clarence E. Northcutt, Ponca City. Guest speakers at the general sessions include:

J. Edward Berk, Philadelphia, Clinical Laboratory Considerations in the Diagnosis of Pancreatic Cancer.
W. James Gardner, Cleveland, Paroxysmal Lacrimation.
Paul A. O'Leary, Rochester, Minn., Present Status of Penicillin in the Treatment of Syphilis.
Charles D. Blassingame, Memphis, Tenn., Diagnosis and Treatment of Sinus and So-Called Sinus Disease.
John A. Key, St. Louis, Diagnosis and Treatment of Low Back Pain.
C. Charles Burlingame, Hartford, Conn., Emotions Under a Microscope.
Frank E. Whitacre, Memphis, Tenn., Late Ectopic Pregnancy.
Myron E. Wegman, New Orleans, Health Services for School Children.
Edwin G. Williams, Washington, D. C., Medical Aspects of Atomic Energy.
Wolfgang W. Zuelzer, Detroit, Intestinal Obstruction in Infancy.

Section meetings in medicine and surgery will be held in the afternoons, and round table luncheons daily Monday through Wednesday at 12:30 p. m. The annual dinner dance will be held on Tuesday. Exhibits will be on display. The Women's Auxiliary to the association will meet at the Mayo Hotel May 15-18.

OREGON

Sommer Memorial Lectures.—The ninth series of Sommer Memorial Lectures will be presented at the University of Oregon Medical School, Portland, April 27-29. The guest lecturers are:

Dr. Winchell McK. Craig, Rochester, Minn., Surgery of Intraspinal Lesions, Surgical Treatment of Hypertension, and Recognition and Treatment of the Various Types of Neuralgias.
Emil Novak, Baltimore, Indications and Limitations of Endocrine Therapy in Gynecology, Early and Precursory Stages of Cervical Cancer, and Hydatidiform Mole and Chorionepithelioma.
Howard F. Root, Boston, Importance of Early Diagnosis of Diabetes or the Diabetes Detection Drive in the United States and the General Practitioner, Treatment of Diabetes and Its Complications with Diet and Insulin, and Treatment of Diabetic Emergencies.

Each guest will present one lecture per day at 10 a. m., 1 p. m. or 8 p. m. The Sommer Memorial Lectures are conducted by the Sommer Memorial Fund, established by the late Dr. Ernst A. Sommer of Portland, under the auspices of the University of Oregon Medical School. Admission is without charge to all members of the profession and to medical students attending an accredited medical school.

VERMONT

Lectures on Pathology.—At the College of Medicine of the University of Vermont and State Agricultural College, Dr. Tracy M. Sonneborn of the department of zoology of the Indiana University, Bloomington, will speak May 5 on the physical basis of cell transformation. Dr. Cornelius P. Rhoads of the Memorial Hospital and the Sloane-Kettering Institute for Cancer Research, New York, will speak on the use of isotopes in cancer research and treatment on June 2. These lectures, the eighth and ninth in a series on fundamental problems of growth and malignancy, are sponsored by the department of pathology and made possible by funds supplied by a grant for cancer teaching from the Federal Security Agency, U. S. Public Health Service.

VIRGINIA

Hospital Honors Surgeon.—Dr. Lomax Gwathmey, Norfolk, who recently retired after a half century of active practice, was honored at a dinner program at the Norfolk General Hospital March 23. He was cited for his services to the community and his work in behalf of the hospital, which he has served in various capacities since the middle of the 1890's. He is at present a member of the board of directors. A portrait of Dr. Gwathmey was presented to the hospital by the board of directors, the medical staff and the woman's auxiliary.

WEST VIRGINIA

Interim Committee for Establishing Medical School.—Just before the state legislature adjourned, an interim committee was appointed which will make a study during the next two years of the advisability of establishing a four year school of medicine and dentistry in West Virginia and the location of such a school. Co-chairmen of the committee are the senate president, W. Broughton Johnston, and the house speaker, William E. Flannery. An advisory committee of not more than ten members is to be appointed by the governor to consult and advise with the interim committee. The advisory committee will include as ex officio members the presidents of West Virginia University, West Virginia State Medical Association, West Virginia State Dental Society and the West Virginia State Nurses Association.

PUERTO RICO

Psychiatric Hospital.—Bids for construction of a $45,800,000 psychiatric hospital to be built at Rio Piedras will be awarded this summer. The insular legislature recently appropriated $1,900,000 for the island's hospital construction program to be added to previous appropriations amounting to over $7,000,000 during the past few years.

Hospital Survey of Island.—Paul Bauer, acting director of the Hospital Construction Program of the Puerto Rico Public Health Department, told the finance committee of the House of Representatives that, in accordance with the hospital survey made on the island, there are 130 hospitals with a normal capacity of 9,925 beds. Of these, 120 are public hospitals with 6,753 beds belonging to the insular government and the municipalities; eight hospitals with 1,854 devoted to diagnosis and treatment of tuberculosis and two hospitals with 1,318 beds, for mental cases. There is no hospital for chronic disease. The number of private hospitals is very small. Puerto Rico needs 11,593 beds for tuberculosis, 10,190 beds for mental disease and 4,075 beds for chronic disease, while there are only 3,622 beds for all.

GENERAL

Meeting of Genito-Urinary Surgeons.—The annual meeting of the American Association of Genito-Urinary Surgeons will be held May 9-11 at the Greenbrier Hotel, White Sulphur Springs, W. Va., under the presidency of Dr. Clyde L. Deming, New Haven, Conn. Included in the program is a symposium on cystectomy. The banquet will be Tuesday evening.

Surgical Congress.—The Southeastern Surgical Congress will hold its Postgraduate Assembly and annual session May 23-26, with headquarters at the Buena Vista Hotel, Biloxi, Miss. Dr. Gilbert F. Douglas, Birmingham, Ala., will deliver the presidential address Monday at 8 p. m. on "The Human Ovary: Am I My Brother's Keeper?" He will be followed by Dr. Curtis H. Tyrone, New Orleans, who will give the C. Jeff Miller Lecture on "Genital Fistula." Round table discussions will be held during luncheons each day.

American Goiter Association Meeting.—The annual meeting of the American Goiter Association will be held in Madison, Wis., May 26-28 with headquarters at the Hotel Loraine. Round table discussions on the program and their leaders are:

Thyroidectomy, Richard B. Cattell, Boston.
Antithyroid Drugs, Edwin B. Astwood, Boston.
Radio-Active Iodine, Mayo H. Soley, Iowa City.
Current Treatment of Hyperthyroidism, John de J. Pemberton, Rochester, Minn.
Treatment of Hyperthyroidism, James H. Means, Boston.

The presidential address will be given by Dr. Arnold S. Jackson, Madison, Wis., on "Henry S. Plummer."

Pharmaceutic Meeting.—The Convention of the American Pharmaceutical Association will be held at Jacksonville, Fla., April 24-30, with headquarters at the George Washington Hotel. President Ernest Little, Ph.D., will deliver the presidential address Tuesday evening. A discussion of proposed medical care programs will take place Thursday morning. Principal speakers will be a representative of the Federal Security Administration and Dr. Frank G. Slaughter, Jacksonville, Fla. The program includes a symposium on blood and blood products under the leadership of Edwin Cohn, Ph.D., Harvard University Medical School, Boston. The Iodine Educational Research, Inc., Award Lecture will be delivered by Dr. William T. Salter of Yale University Medical School, New Haven, Conn.

Historians to Observe Osler Centenary.—The American Association of the History of Medicine will hold its annual meeting May 22-24 at the Lafayette Hotel in Lexington, Ky., under the presidency of Dr. Henry R. Viets, Boston. The Sunday evening session will be devoted to papers on Dr. William Osler, in recognition of the centenary celebration. The William Osler Medal will be presented Monday afternoon and Dr. Viets will deliver the Fielding H. Garrison Lecture on George Cheyne (1671-1743). The dinner address Monday at 8 p. m. will be given by Dr. Howard Dittrick, Cleveland, on "Temple to Hospital in Care of the Sick." The Tuesday morning papers will be given at the Ephraim McDowell House in Danville, and will concern early medicine in Kentucky.

International Congress of Ophthalmology in 1950.—The sixteenth International Congress of Ophthalmology will be held in London under the presidency of Sir Stewart Duke-Elder July 17-21, 1950. It is the first international congress to be held in thirteen years. Any qualified medical practitioner may become a member of the congress, and others may attend on approval by the Council. The three official languages of the congress are English, French and Spanish. The international congress have agreed on two main discussions: (1) the role of the sympathetic system in the genesis of vascular hypertension and its effect on the eye, and (2) the clinical and social aspects of heredity in ophthalmology. Those desirous of participating should communicate with Mr. Keith Lyle, International Congress of Ophthalmology, 45 Lincoln's Inn Fields, London, W.C.2.

Orthopedists to Tour British Isles.—The American and Canadian Orthopaedic associations have selected a group of orthopedic surgeons to make a tour of the British Isles as guests of the British Orthopaedic Association. The North American associations were hosts to fourteen Nuffield fellows in orthopedics last year. Representatives of the American Orthopaedic Association are Drs. Lee R. Straub, New York; Carroll B. Larson, Boston; John H. Allan, Philadelphia; Hugh Smith, Memphis, Tenn.; S. Benjamin Fowler, Nashville, Tenn.; Benjamin E. Obletz, Buffalo; John J. Fahey, Chicago; William H. Bickel, Rochester; Verne T. Inman, San Francisco, and Donald W. Blanche, Los Angeles. In addition, the Canadian Orthopaedic Association was asked to select five Canadian orthopedic surgeons: Frank P. Patterson, Vancouver; William M. MacKinnon, Winnipeg; Frederick P. Dewar, Toronto; Roger Gariepy, Montreal, and J. A. Leo Walker, Montreal. The group sailed from New York March 17 and will be in the British Isles for approximately six weeks. The physicians will attend scientific meetings and deliver a series of scientific papers.

Life Insurance Medical Research Fund.—Life insurance companies of the United States and Canada will contribute $680,000 during the coming year for the support of heart disease research through the Life Insurance Medical Research Fund. These awards raise to more than $2,500,000 the amount contributed by the companies since the fund was started. A total of $585,300 will be used by thirty-five universities and research centers for the support of fifty-three different research projects. In addition, the fund has allocated $94,700 for the support of eighteen graduate and nine undergraduate research fellows who will work in the field of heart disease under the supervision of experienced investigators in medical centers. Organized late in 1945, the Life Insurance Medical Research Fund is now supported by 147 life insurance companies. Thus far it has restricted its activities to heart disease and particularly to research into such conditions as high blood pressure, hardening of the arteries, coronary disease and rheumatic fever. The new members of the advisory council are Drs. Alfred Blalock, Baltimore; Eugene B. Ferris Jr., Cincinnati; William S. Middleton, Madison, Wis., and Maxwell M. Wintrobe, Salt Lake City. The advisory council, under the chairmanship of Dr. Francis G. Blake of Yale University, serves with Dr. Francis R. Dieuaide, scientific director of the fund, and with the medical directors' representatives as professional advisors to the fund's board.

CANADA

Annual Session of Surgical Society.—The British Columbia Surgical Society will hold its second annual scientific session at the Hotel Vancouver, Vancouver, B. C., April 28-29. Guest speakers include Drs. Oscar T. Clagett, Rochester, Minn., and M. Digby Leigh, Vancouver. At the banquet Dr. Clagett will speak on "Indications for Pulmonary Resection."

Special Society Meetings.—The Montreal Medico-Chirurgical Society will hold a meeting on Occupational Diseases of the Lung May 6 in the rooms of the society. Dr. R. Hall-McCoy and Dr. Donald C. Bews, both of Montreal, will be the speakers. The annual dinner will be held May 13 at the Windsor Hotel. Dr. Frank H. Lahey, Boston, will speak on "Present Management of Thyroid Diseases in the Light of Some of the Newer Agents Now Available."

Deaths in Foreign Countries

Dr. Neil P. Macphail, medical superintendent, United Fruit Company in Guatemala, died April 1 at a hospital in Quirigua. He has been foremost in developing new methods for control of malaria and dysentery. In 1948 he was selected by the American Foundation for Tropical Medicine as a recipient of the Richard P. Strong Medal for distinguished service in the field of tropical medicine. He graduated from the University of Aberdeen, Scotland, in 1906.—**Dr. Sante Solieri,** dean of pathologic and clinical surgery at Siena University, Italy, and author of numerous scientific works, died April 6.

CORRECTION

"Fractures and Calcium Metabolism in the Aged."—In the Query and Minor Note (The Journal, March 19, p. 814) the recommended allowance of calcium for adults is given as 0.8 to 1.0 mg. per day. The recommended allowance of calcium should have been given as 0.8 to 1.0 gram instead of milligram.

Marriages

William Thomas O'Brien Jr., Phoenix, Ariz., to Miss Dorothy May Myers of East Berlin, Pa., recently.

Achilles A. Berrettini, Plains, Pa., to Miss Joyce Hayhurst of Forty Fort in Orangeville, February 16.

Moe Price Margolies, Coatesville, Pa., to Miss Hedvah Ray Cohen of Philadelphia, February 13.

John Moyer Meredith to Miss Etta Elizabeth Hazelgrove, both of Richmond, Va., January 28.

Arnold W. Schreiber, Brooklyn, to Miss Shirley P. Leifer of New York, December 19.

Harry Robert Lipton to Miss Marjorie Carol Gross, both of Atlanta, February 16.

Edmund Billings, Boston, to Miss Phyllis June Rea of Foxboro, Mass., recently.

Deaths

Nathaniel Philip Rathbun ⊕ Brooklyn; born in Springfield, Mass., in 1876; Long Island College Hospital, Brooklyn, 1898; specialist certified by the American Board of Urology, Inc.; past president of the American Association of Genito-Urinary Surgeons and the American Urological Association; fellow of the American College of Surgeons; for many years chief of the urologic service of Brooklyn Hospital; consultant urologist at Lutheran, Norwegian, Beth-El, Bushwick and Eastern Long Island hospitals; for many years member of the board of trustees of his alma mater, which in 1946 awarded him the second alumni medallion for distinguished service to American medicine; died February 26, aged 72.

Howard Troy Phillips ⊕ Wheeling, W. Va.; born in St. George, W. Va., Aug. 19, 1891; Western Reserve University School of Medicine, Cleveland, 1920; specialist certified by the American Board of Dermatology and Syphilology; member of the House of Delegates of the American Medical Association in 1933, 1936 and 1937; member of the American Academy of Dermatology and Syphilology; past president of the Ohio County Medical Society; affiliated with Reynolds Memorial Hospital in Glen Dale, Ohio Valley General and Wheeling hospitals; died March 7, aged 57, of injuries received when his station wagon was struck by a bus.

Clifford Phillip Rutledge ⊕ Shreveport, La.; University of Alabama School of Medicine, 1912; specialist certified by the American Board of Radiology, Inc.; past secretary and president of Shreveport Medical Society, past president of Louisiana Radiological Society; member of the American Roentgen Ray Society, Radiological Society of North America and the American College of Radiology; fellow of the American College of Physicians; served overseas during World War I; affiliated with Highland Sanitarium and Shriners' Hospital for Crippled Children; died January 31, aged 63, of coronary heart disease.

James Lewald ⊕ Laurel, Md.; Washington University School of Medicine, St. Louis, 1911; professor of clinical psychiatry at the Georgetown University School of Medicine in Washington, D. C.; specialist certified by the American Board of Psychiatry and Neurology, Inc.; member of the American Psychiatric Association and the American Association on Mental Deficiency; served during World War I; superintendent of the District Training School; died in the University of Maryland Hospital, Baltimore, February 3, aged 60, of pulmonary embolism and coronary thrombosis.

Susan Katherine Ackermann, Chicago; Chicago College of Medicine and Surgery, 1912; affiliated with the Norwegian American Hospital, where she died February 14, aged 68, of a fractured femur received in a fall and bronchopneumonia.

Katherine A. Astler, Elmwood Place, Ohio; Woman's Medical College of Cincinnati, 1889; died in the Bethesda Hospital, Cincinnati, February 22, aged 85, of arteriosclerotic heart disease.

Frank Raymond Bailey ⊕ Pittsburgh; University of Pennsylvania School of Medicine, Philadelphia, 1913; fellow of the American College of Surgeons; served as president of the Pittsburgh Surgical Society; commanding officer of a general hospital overseas during World War II; for many years affiliated with Western Pennsylvania Hospital; died February 25, aged 61, of coronary occlusion.

McKenzie A. Baker, Shawnee, Okla.; Memphis (Tenn.) Hospital Medical College, 1895; on the staffs of the Shawnee Municipal Hospital and the Shawnee Indian Sanatorium; died January 29, aged 82, of carcinoma of the urinary bladder.

James Clinton Ballard, Biloxi, Miss.; Vanderbilt University School of Medicine, Nashville, Tenn., 1891; served in the regular army and during World War I; for many years affiliated with the veterans administration; died in the Veterans Administration Hospital February 24, aged 82, of cerebral thrombosis.

Harry Fred Bayard, Minneapolis; University of Minnesota Medical School, Minneapolis, 1922; fellow of the American College of Surgeons; member of the American Medical Association; a fellow in proctology at the Mayo Foundation from January 1928 to April 1, 1931; served as assistant in surgery at his alma mater; died in St. Barnabas Hospital January 14, aged 51, of uremia.

Clifford Harry Beach ⊕ Richmond, Va.; Medical College of Virginia, Richmond, 1928; on the staffs of Stuart Circle and St. Luke's hospitals; died February 16, aged 46, of cerebral thrombosis.

Bernard Benjamin Berkeley, Los Angeles; Baltimore University School of Medicine, 1899; specialist certified by the American Board of Dermatology and Syphilology; formerly practiced in Brooklyn, where he was on the staffs of the Beth Moses and Jewish hospitals; died in the Cedars of Lebanon Hospital February 1, aged 70, of congestive heart failure and hypertension.

Lawrence D. Berryman, Russellville, Ark.; University of Arkansas School of Medicine, Little Rock, 1905; member of the American Medical Association; died in St. Joseph Hospital, Memphis, Tenn., January 26, aged 70.

Edward Gustine Blinks, Michigan City, Ind.; Baltimore Medical College, 1893; member of the American Medical Association; died in the Clinic Hospital February 11, aged 80, of coronary thrombosis and cardiovascular renal disease.

Philip Williams Boyd, Winchester, Va.; University College of Medicine, Richmond, 1898; member of the American Medical Association and the Southeastern Surgical Congress; fellow of the American College of Surgeons; past president and for many years member of the state board of medical examiners; past vice president of the Medical Society of Virginia; for many years on the staff of Memorial Hospital; vice president of the Shenandoah Valley National Bank; died February 17, aged 73, of coronary disease.

Isham Keith Briggs ⊕ South Boston, Va.; University College of Medicine, Richmond, 1904; medical superintendent of South Boston Hospital, where he died February 8, aged 67, of coronary thrombosis.

Fredrick Heman Brush ⊕ Yakima, Wash.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1905; specialist certified by the American Board of Urology, Inc.; member of the American Urological Association; fellow of the American College of Surgeons; past president of the Washington State Medical Association; on the staff of St. Elizabeth Hospital; died February 13, aged 66, of heart disease.

Charles Henry Carlin ⊕ Torrington, Conn.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1896; fellow of the American College of Surgeons; specialist certified by the American Board of Otolaryngology; for many years member of the board of education; past president of the Litchfield County Medical Society; on the staff of Charlotte Hungerford Hospital; died suddenly, February 13, aged 76, of coronary occlusion, rheumatic heart disease and cirrhosis of the liver.

Hans Chase, Pulaski, N. Y.; Georg August-Universität Medizinische Fakultät, Göttingen, Prussia, Germany, 1927; member of the American Medical Association; died January 13, aged 47, of coronary heart disease.

John Wallace Compton, Ronceverte, W. Va.; Bennett Medical College, Chicago, 1915; member of the American Medical Association; chairman of the Greenbrier County Board of Education; served as county health officer; died February 2, aged 70, of carcinoma.

George Franklin Drum ⊕ Mifflinville, Pa.; Baltimore University School of Medicine, 1900; died February 1, aged 75, of chronic myocarditis.

Hugh Dunn, Richwood, W. Va.; College of Physicians and Surgeons, Baltimore, 1913; member of the American Medical Association; formerly on the staff of McClung Hospital; honorary member, past president and secretary of the Central West Virginia Medical Society; for many years member of the board of education; postmaster from 1935 until 1943; died January 31, aged 73, of coronary thrombosis.

Isidor Janeway Ehlin ⊕ New York; Eclectic Medical College, Cincinnati, 1927; member of the American Public Health Association; affiliated with the Metropolitan Hospital; chief of the genitourinary clinic at Lebanon Hospital; died February 1, aged 47, of coronary thrombosis.

William Wirt Eichelberger, Evansville, Ind.; University of Maryland School of Medicine, Baltimore, 1904; member of the American Medical Association; served during World War I; formerly assistant superintendent of the Jacksonville (Ill.) State Hospital and affiliated with the Alton (Ill.) State Hospital; assistant superintendent of the Evansville State Hospital, where he died January 12, aged 70, of coronary heart disease.

Horace Singleton Falconer, Fairmont, W. Va.; University of Maryland School of Medicine, Baltimore, 1898 first medical inspector of schools; died January 31, aged 66, of cerebral hemorrhage.

Orren P. Gandy ⊕ Lufkin, Texas; Baylor University College of Medicine, Dallas, 1912; county health officer; affiliated with Angelina County Hospital; died February 1, aged 58, of coronary thrombosis.

Frank Glassner ⊕ Roselle, N. J.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1936; served during World War II; affiliated with the Alexian Brothers and St. Elizabeth's hospitals in Elizabeth; died February 10, aged 37, of pulmonary infarction.

Thomas Stephen Green, Chicago; College of Physicians and Surgeons of Chicago, 1895; member of the American Medical Association; died February 3, aged 80, of arteriosclerosis and diabetes mellitus.

Pursifor Frazier Guie, Manheim, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1910; served during World War I; affiliated with Lancaster General Hospital and St. Joseph's Hospital in Lancaster, where he died January 28, aged 62, of heart disease.

Harriet W. Hale, Shushan, N. Y.; New York Medical College and Hospital for Women, New York, 1896; formerly practiced in Brooklyn, where she was on the staffs of the Cumberland and Prospect Heights hospitals; died February 5, aged 82, of arteriosclerosis.

Paul Gustavus Hankwitz, Shorewood, Wis.; Bennett Medical College, Chicago, 1896; died January 27, aged 77, of rheumatic heart disease.

Carl Leroy Horn Jr., Ripley, Tenn.; University of Tennessee College of Medicine, Memphis, 1942; member of the American Medical Association and the American Society of Anesthetists; served during World War II; died January 31, aged 31, of an accidental gunshot wound received while cleaning his gun.

Albert A. Hughes, Grosse Pointe Park, Mich.; Detroit College of Medicine, 1911; member of the American Medical Association; for many years county coroner; affiliated with St. Mary's and Harper hospitals in Detroit; died January 21, aged 72, of coronary thrombosis.

John Hughes, Pittsfield, Mass.; University of Vermont College of Medicine, Burlington, 1905; member of the American Medical Association; associate medical examiner of the Central Berkshire District; affiliated with the Hillcrest and St. Luke's hospitals; died in Bristol, R. I., February 11, aged 66, of coronary thrombosis.

Harold Stacey Hulbert ⊕ Aurora, Ill.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1914; formerly on the faculty of his alma mater and the University of Illinois College of Medicine in Chicago; member of the American Psychiatric Association; affiliated with St. Charles Hospital and the Copley Hospital, where he died February 14, aged 62, of heart disease.

Francis Taylor Isbell, Eastland, Texas; Memphis (Tenn.) Hospital Medical College, 1901; member of the American Medical Association; past president of the Eastland-Callahan Counties Medical Society; for many years member of the state board of medical examiners, of which he had been president; for many years county health officer; on the staff of the Ranger (Texas) General Hospital; died December 26, aged 73, of carcinoma of the sigmoid colon and pulmonary embolism.

Bertram Barr Jaffa, Denver; University of Colorado School of Medicine, Denver, 1922; member of the American Medical Association; assistant professor of obstetrics and gynecology at his alma mater; at one time manager of health and charities; served during World War I; formerly executive secretary of the Colorado Hospital Association; died January 22, aged 53, of coronary thrombosis, chronic emphysema and asthma.

George Alexander Johnson, Washington, D. C.; Howard University College of Medicine, Washington, 1914; died in the Freedmen's Hospital January 26, aged 58, of acute congestive heart failure.

Elizabeth L. Hall Ketcham, Carthage, Mo.; Woman's Medical College of Pennsylvania, Philadelphia, 1892; served on the staff of McCune-Brooks Hospital, where she died January 23, aged 80, of left ventricular failure.

Jacob S. Keyser ⊕ Wilmington, Del.; Medico-Chirurgical College of Philadelphia, 1912; fellow of the American College of Surgeons; chairman of the medical board and on the staff of Wilmington General Hospital; on the staff of St. Francis Hospital; died January 1, aged 63, of coronary artery disease.

Anderson Blake Killingsworth, Arcola, Mo.; Memphis (Tenn.) Hospital Medical College, 1901; died January 6, aged 79, of cardiovascular renal disease.

Orman Trimble Kimbrough ⊕ Wichita Falls, Texas; University of Texas School of Medicine, Galveston, 1919; past president of the Wichita County Medical Society; served as city health officer and president of the Wichita County Tuberculosis Society; died December 15, aged 55.

Earl LaVerne Kingsbury ⊕ Keokuk, Iowa; State University of Iowa College of Medicine, Iowa City, 1932; formerly county coroner; died in St. Joseph Hospital January 22, aged 44, of cerebral hemorrhage.

Henry Martin Kleinhans, Whitewater, Wis.; Marquette University School of Medicine, Milwaukee, 1940; member of the American Medical Association; served during World War II; died in Madison January 7, aged 35, of injuries received in a traffic accident.

William Frederick Koerner, Cleveland; Long Island College Hospital, Brooklyn, 1890; died December 28, aged 80, of coronary thrombosis.

Lloyd T. Lancaster, Cherokee, Okla.; Baltimore University School of Medicine, 1904; member of the American Medical Association; president of the Alfalfa County Medical Society; for many years county health officer; died December 8, aged 70.

Norbert Michael Joseph Latz, Chicago; Loyola University School of Medicine, Chicago, 1931; member of the American Medical Association; on the staffs of St. Elizabeth's Hospital, St. Joseph's Hospital and Alexian Brothers' Hospital, where he died February 9, aged 41, of bronchopneumonia and myocarditis.

Huron Willis Lawson ⊕ Washington, D. C.; George Washington University School of Medicine, 1903; professor emeritus of obstetrics and gynecology at his alma mater; fellow of the American College of Surgeons; for many years surgeon for the police and fire department; affiliated with Freedmen's, Gallinger Municipal, Doctors', Columbia and George Washington University hospitals; died January 29, aged 75, of myocardial failure.

Frederick William Lederman ⊕ New York; Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau, Prussia, Germany, 1925; affiliated with the Hospital for Joint Diseases; died in the Medical Arts Center Hospital January 1, aged 49, of uremia.

Edward Ellsworth Lesch, Chicago; College of Physicians and Surgeons, Keokuk, Iowa, 1887; died in Manor Hospital January 27, aged 88, of injuries received in a fall.

Joe O. Leslie ⊕ Marshall, Ark.; Kansas City (Mo.) College of Medicine and Surgery, 1924; died February 9, aged 59, of heart disease.

Abraham M. Litvak ⊕ Brooklyn; George Washington University School of Medicine, Washington, D. C., 1920; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics; fellow of the American College of Physicians; president of the medical board and visiting physician at the Kingston Avenue Hospital; affiliated with Beth-El and Jewish hospitals; died January 28, aged 66, of lymphosarcoma of the abdomen.

Frederic Morris Loomis, Piedmont, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1912; member of the American Medical Association and the Pacific Coast Society of Obstetrics and Gynecology; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; veteran of the Spanish-American War; formerly on the faculty of his alma mater; formerly affiliated with the Peralta Hospital; author of "Consultation Room" and "The Bond Between Us"; died February 9, aged 71.

Harry Hunter Lott, Bryn Mawr, Pa.; Jefferson Medical College of Philadelphia, 1907; served during World War I; formerly on the faculty of his alma mater; died in Lake Worth, Fla., February 5, aged 69, of coronary thrombosis.

Albert Theodore Lundgren ⊕ Chicago; Rush Medical College, Chicago, 1907; fellow of the American College of Surgeons; a member of the Chicago Crime Commission; on the staff of the Augustana Hospital, where he died January 23, aged 71, of acute coronary thrombosis and arteriosclerotic heart disease.

Jacob Lake McClary, Cleveland, Tenn.; University of Nashville (Tenn.) Medical Department, 1898; member of the American Medical Association; died January 21, aged 74, of coronary thrombosis.

William Mackintosh Mackay ⊕ Waltham, Mass.; M.B., Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1913, and M.D. in 1914; senior physician at the Middlesex County Sanatorium; died January 31, aged 59, of cerebral hemorrhage.

James W. McKean ⊕ Long Beach, Calif.; Bellevue Hospital Medical College, New York, 1882; an Associate Fellow of the American Medical Association and member of the Nebraska State Medical Association; decorated by the King of Siam with the Order of the Crown in recognition of his work as a medical missionary; died in California Sanitarium February 9, aged 88, of acute cardiac failure.

Wilbur Blaine McKibbin ⊕ Seattle; Northwestern University Medical School, Chicago, 1930; died February 14, aged 54, of coronary occlusion and arteriosclerosis.

Robert Gordon McMurray, Marion, Ohio; Ohio State University College of Medicine, 1927; formerly secretary of the Marion County Academy of Medicine; died January 6, aged 49.

Frances Petty Manship, West Haven, Conn.; Woman's Medical College of Pennsylvania, Philadelphia, 1912; died December 22, aged 76, of myocarditis.

Henry William Markley ⊕ Rochester, Ind.; Hospital College of Medicine, Louisville, 1901; served during World War I; died February 5, aged 76, of coronary occlusion.

Charles Harry Mielke, Kansas City, Kan.; College of Physicians and Surgeons, Medical Department Kansas City University, 1900; member of the American Medical Association; served during World War I; died January 31, aged 75, of coronary occlusion.

William Thomas Mitchell Jr., Pittsburgh; Johns Hopkins University School of Medicine, Baltimore, 1916; member of the American Medical Association; chairman of the medical division of the Allegheny General Hospital, where he died January 29, aged 58, of coronary thrombosis.

Matthew Joseph Moes ⊕ Dubuque, Iowa; Northwestern University Medical School, Chicago, 1906; member of the American Association of Industrial Physicians and Surgeons; affiliated with St. Joseph Mercy and Finley hospitals; died in Maquoketa January 30, aged 67, of injuries received in an automobile accident.

George Hulett Moreland, Kansas City, Mo.; University of Louisville (Ky.) Medical Department, 1917; member of the American Medical Association; served during World War I; affiliated with Trinity Lutheran and Kansas City General hospitals; for many years city physician; died January 26, aged 63, of coronary thrombosis.

Charles Martin Murphy, Aliceville, Ala.; Birmingham Medical College, 1898; member of the American Medical Association; died January 27, aged 75, of heart disease.

Henry Cloyd Murphy, Salinas, Calif.; Jefferson Medical College of Philadelphia, 1886; member of the American Medical Association; founder of Park Lane Hospital, where he died December 2, aged 85, of neoplasm of the right lung.

Alfred Cookman Norcross, Washington, D. C.; George Washington University School of Medicine, Washington, 1905; member of the American Medical Association; served during World War I; affiliated with Garfield Memorial and Sibley hospitals; died in the Newton D. Baker Hospital, Martinsburg, W. Va., January 23, aged 74, of pneumonia.

John Lyman Pepper, South Portland, Me.; Medical School of Maine, Portland, 1894; member of the American Medical Association; formerly district health officer for the state department of health; died December 28, aged 83.

John Mason Pressly, Belmont, N. C.; North Carolina Medical College, Charlotte, 1915; member of the American Medical Association; past president of the Gaston County Medical Society; served during World War I; affiliated with Presbyterian Hospital, Charlotte, where he died January 30, aged 58, of malignant hypertension.

Jerome Lee Rawhauser, Willows, Calif.; Keokuk (Ia.) Medical College, College of Physicians and Surgeons, 1907; died December 20, aged 79, of cerebral hemorrhage.

Clinton Hillyer Richey ⊕ Valley Head, Ala.; University of Louisville School of Medicine, 1929; died in Port Arthur, Texas, January 18, aged 45, of acute posterior myocardial infarction.

Clair Edward Robison ⊕ Altoona, Pa.; Jefferson Medical College of Philadelphia, 1903; past president of the Blair County Medical Society; on the staff of Altoona Hospital, where he died January 27, aged 69, of myocardial infarction.

Charles Edwin Sanford, Seattle; Yale University School of Medicine, New Haven, Conn., 1906; member of the American Medical Association and of the Connecticut State Medical Association, of which he had been vice president; died January 27, aged 68, of progressive amyotrophic sclerosis.

James Walter Shopshire, Sidney, Ohio; Baltimore Medical College, 1907; died in the Wilson Memorial Hospital January 17, aged 67, of coronary heart disease.

Lacey Lee Shuler ⊕ Indianapolis; Indiana University School of Medicine, Indianapolis, 1919; specialist certified by the American Board of Orthopaedic Surgery; member of the Clinical Orthopaedic Society and the American Academy of Orthopaedic Surgeons; formerly on the faculty of his alma mater; served during World Wars I and II; on the staffs of Indianapolis General, Methodist and St. Vincent's hospitals; died January 15, aged 56, of rheumatic heart disease.

George Joseph Signorelli, Brooklyn; Long Island College Hospital, Brooklyn, 1914; member of the American Medical Association; served overseas during World War I; examining physician for the Selective Service Board during World War II; on the staffs of the Evangelical Deaconess and St. Catherine's hospitals; died in Beekman Hospital January 27, aged 59, of coronary thrombosis.

George Albert Sihler Jr. ⊕ Litchfield, Ill.; McGill University Faculty of Medicine, Montreal, Canada, 1910; died January 8, aged 62, of carcinoma of the pancreas.

David Edward Smallhorst, Ash Grove, Mo.; Beaumont Hospital Medical College, St. Louis, 1900; member of the American Public Health Association; served during World War I; for many years connected with the Los Angeles County (Calif.) Health Department and at one time health officer for the San Fernando District in California; died in Springfield, January 3, aged 74, of coronary occlusion.

Allan Erwin Stamler, Corcoran, Calif.; University of Illinois College of Medicine, Chicago, 1926; member of the American Medical Association; president of the Kings County Medical Society; formerly city health officer; served on the staffs of Kings County Hospital, Hanford Sanitarium and Sacred Heart Hospital, all in Hanford; died February 7, aged 46, of coronary thrombosis.

Fred Ben Steinberg, Chicago; Chicago Medical School, 1935; member of the American Medical Association; served during World War II; on the staffs of Illinois Masonic, American, Roosevelt Memorial and Frank Cuneo hospitals; died March 16, aged 38, of acute coronary thrombosis.

Wallace Weston Tate, Thayer, Ind.; Harvey Medical College, Chicago, 1903; member of the American Medical Association; affiliated with Jasper County Hospital, where he died December 13, aged 73, of coronary disease.

Russell Vernon Thomas ⊕ Manteno, Ill.; University of Louisville School of Medicine, 1910; affiliated with St. Mary's Hospital in Kankakee; died in Wesley Memorial Hospital, Chicago, January 13, aged 65, of pneumonia following an operation for carcinoma of the lung.

Howard Gilbert Wallis, Columbus, Ga.; Atlanta School of Medicine, 1908; died in the City Hospital January 5, aged 66.

Jefferson Webb, Winchester, Ky.; Hospital College of Medicine, Louisville, 1898; died February 7, aged 83, of cerebral hemorrhage.

Ward Young, Gouverneur, N. Y.; Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1898; member of the American Medical Association; specialist certified by the American Board of Otolaryngology; on the staff of the Stephen B. Van Duzee Hospital; died January 26, aged 77, of myocardial infarct due to arteriosclerosis.

DIED WHILE IN MILITARY SERVICE.

Charles William Straub, Los Angeles; Stanford University School of Medicine, San Francisco, 1947; served a rotating internship in the Los Angeles County General Hospital; lieutenant (jg.), U. S. Naval Reserve; entered the navy on active duty July 20, 1947; served at the Naval Hospital, Long Beach, Naval Shipyard, Terminal Island, and at the time of his death attached to Company A, First Medical Battalion, First Marine Division; died in Camp Joseph Pendleton, Oceanside, January 11, aged 26, of subarachnoid hemorrhage.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 12, 1949.

Further Attempt of the Australian Government to Coerce the British Medical Association

The British Medical Association in Australia has announced, after a meeting of its federal council, that it will take all necessary steps, including legal action, to preserve the freedom of its members. This declaration follows the declaration of Mr. Chiffley, the Prime Minister, that amending legislation clarifying the Government's power to make regulations for the national health scheme will be introduced. Mr. Chiffley said that the bill will give no clue to the methods by which the Government will proceed, as the existing legislation is largely in skeleton form, giving authority for operative measures to be taken by regulation. It is understood, however, that the Government intends to take power to make regulations under the Pharmaceutical Benefits Act compelling doctors prescribing drugs within the Government formulary to write prescriptions on a form which will insure that patients receive free medicine, and imposing penalties if the doctors refuse. In a previous letter to THE JOURNAL it was stated that the Australian Government, having failed in their attempt to introduce free medical treatment, attempted a lesser thing—to introduce free medicines. These had to be prescribed on an official form and imposed restrictions on the preparations to be ordered. But the doctors refused to use the Government forms.

The British Medical Association of Australia has issued a statement that its members will not yield to coercion or to any limitation of their own or their patients' freedom. The Government, having repeatedly stated that it cannot compel doctors to prescribe medicines from the Government list, now proposes to force doctors to sign prescriptions on Government forms for drugs which happen to be within the Government list. This the statement declares to be plainly an attempt at coercion. If the Government genuinely desires to give people free medicines, it can easily do so by paying for them on presentation of a doctor's prescription.

Neonatal Mortality and Morbidity

An important report on neonatal mortality and morbidity has been published by the Ministry of Health. It is the work of a joint committee of the Royal College of Obstetricians and Gynecologists and the British Pediatric Association. It shows the great progress which has been made in reducing neonatal mortality and morbidity. The saving of infant lives since the beginning of the century has been more significant in the last eleven months of the first year than in the first month or neonatal period. In 1945 the neonatal mortality (deaths in the first month per thousand live births) was 24.8 for England and Wales, compared with 21 for Holland in the prewar period and 16 for Amsterdam. In prewar times London's rate was 24, but in the northern cities figures were reached of over 40. The report argues that the English rates could be reduced to those of Holland by better professional and administrative measures. The records of emergency maternity homes during the war showed what could be done. For normal cases the neonatal mortality was only 9.6 and for homes upgraded to admit abnormal cases 13.9. The beneficial effects of a good diet during pregnancy and lactation are shown. The fall in infant mortality and the stillbirth rate during the war can in part be traced to greater care taken of pregnant women.

Analgesics During Labor.—Analgesics when properly employed during labor may facilitate progress by relieving pain and anxiety, but they carry some risk to both mother and child, which cannot be entirely eliminated even in skilled hands. Gas and air machines can be safely used by trained midwives, but anesthesia, that is a deeper stage, demands an expert if it is to be safe for mother and child. All maternity hospitals should appoint full time resident anesthetists. The ideal method of relief of pain in child birth remains to be discovered.

Prematurity.—The exact size of the problem is not yet fully known, since a system of notification has only recently been established. Two in 5 of stillbirths and 1 in 20 of live babies are estimates of the number of premature deliveries. The cause is not altogether clear, but much can be done by improved care and management. Full details are given of methods of caring for premature infants based on a special report of the British Pediatric Society. It is made clear that such babies if free from disease and given special care will usually grow up normally.

Trichloroethylene as an Analgesic in Labor for Use by Midwives

A committee of the Royal College of Obstetricians and Gynecologists have completed an investigation into the use of trichloroethylene as an analgesic in labor, given by the improved model of the Freedman bottle. As a result the Council of the College have decided that they cannot recommend the method for use by midwives without supervision in domiciliary practice. The method was studied in 2,354 cases in sixteen hospitals. Between 70 and 80 per cent of the mothers were pleased with it, some were doubtful and under 7 per cent were dissatisfied. The observers found that analgesia can be achieved without any high degree of skill and that the method relieves pain equally well when combined with other analgesics in difficult labors. If the mother is very nervous the method becomes less effective, but even in this group over 60 per cent were pleased and only 14 per cent dissatisfied. Better anesthesia was produced than by Minnitt's gas and air machine. A small proportion—under 5 per cent—became uncooperative, mainly because they were too sleepy to push to the second stage; a few were restless. In 6 cases trichloroethylene was suspected of causing bradycardia or arrhythmia of the maternal heart, but 3 of these patients had meperidine hydrochloride as well.

These favorable findings led the majority of observers to decide in favor of domiciliary administration by midwives, but two thought that unsupervised midwives might give the drug for longer periods than was customary in this series and two were against its use by midwives because of occasional effects on the fetal pulse rate and occasional uncooperation by the mother. The material of the report was collated by two research fellows of the Association of Anesthetists, who also acted as observers. They wrote the report and concluded that trichloroethylene is unsuitable for the unsupervised midwife because the concentration of the vapor varies not only with the temperature but also with the amount of shaking the bottle gets, and the depth of the mother's respiration. Her tolerance also varies. They also fear administration in excess and the production of anesthesia. The Council of the College promises that further attempts will be made to produce an apparatus that will fulfil all requirements.

A bill to secure analgesia in labor has received its second reading in the House of Commons. It seeks to train within four years all midwives in the administration of analgesia, imposes a duty on local authorities to supply apparatus, drugs and transport, and makes it a duty of all hospitals to have the apparatus ready for use. The women members present strongly demanded the bill, but the Government, while agreeing with the objects of the bill, did not agree that it could provide any addition to the service already provided under the National Health Service. In the clamor for this bill only the advantages of analgesia, undoubtedly great in certain cases, were regarded. The fact that, like all drugs, analgesics have their drawbacks

William Mackintosh Mackay ⊕ Waltham, Mass.; M.B., Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1913, and M.D. in 1914; senior physician at the Middlesex County Sanatorium; died January 31, aged 59, of cerebral hemorrhage.

James W. McKean ⊕ Long Beach, Calif.; Bellevue Hospital Medical College, New York, 1882; an Associate Fellow of the American Medical Association and member of the Nebraska State Medical Association; decorated by the King of Siam with the Order of the Crown in recognition of his work as a medical missionary; died in California Sanitarium February 9, aged 88, of acute cardiac failure.

Wilbur Blaine McKibbin ⊕ Seattle; Northwestern University Medical School, Chicago, 1930; died February 14, aged 54, of coronary occlusion and arteriosclerosis.

Robert Gordon McMurray, Marion, Ohio; Ohio State University College of Medicine, 1927; formerly secretary of the Marion County Academy of Medicine; died January 6, aged 49.

Frances Petty Manship, West Haven, Conn.; Woman's Medical College of Pennsylvania, Philadelphia, 1912; died December 22, aged 76, of myocarditis.

Henry William Markley ⊕ Rochester, Ind.; Hospital College of Medicine, Louisville, 1901; served during World War I; died February 5, aged 76, of coronary occlusion.

Charles Harry Mielke, Kansas City, Kan.; College of Physicians and Surgeons, Medical Department Kansas City University, 1900; member of the American Medical Association; served during World War I; died January 31, aged 75, of coronary occlusion.

William Thomas Mitchell Jr., Pittsburgh; Johns Hopkins University School of Medicine, Baltimore, 1916; member of the American Medical Association; chairman of the medical division of the Allegheny General Hospital, where he died January 29, aged 58, of coronary thrombosis.

Matthew Joseph Moes ⊕ Dubuque, Iowa; Northwestern University Medical School, Chicago, 1906; member of the American Association of Industrial Physicians and Surgeons; affiliated with St. Joseph Mercy and Finley hospitals; died in Maquoketa January 30, aged 67, of injuries received in an automobile accident.

George Hulett Moreland, Kansas City, Mo.; University of Louisville (Ky.) Medical Department, 1917; member of the American Medical Association; served during World War I; affiliated with Trinity Lutheran and Kansas City General hospitals; for many years city physician; died January 26, aged 63, of coronary thrombosis.

Charles Martin Murphy, Aliceville, Ala.; Birmingham Medical College, 1898; member of the American Medical Association; died January 27, aged 75, of heart disease.

Henry Cloyd Murphy, Salinas, Calif.; Jefferson Medical College of Philadelphia, 1886; member of the American Medical Association; founder of Park Lane Hospital, where he died December 2, aged 85, of neoplasm of the right lung.

Alfred Cookman Norcross, Washington, D. C.; George Washington University School of Medicine, Washington, 1905; member of the American Medical Association; served during World War I; affiliated with Garfield Memorial and Sibley hospitals; died in the Newton D. Baker Hospital, Martinsburg, W. Va., January 23, aged 74, of pneumonia.

John Lyman Pepper, South Portland, Me.; Medical School of Maine, Portland, 1894; member of the American Medical Association; formerly district health officer for the state department of health; died December 28, aged 83.

John Mason Pressly, Belmont, N. C.; North Carolina Medical College, Charlotte, 1915; member of the American Medical Association; past president of the Gaston County Medical Society; served during World War I; affiliated with Presbyterian Hospital, Charlotte, where he died January 30, aged 58, of malignant hypertension.

Jerome Lee Rawhauser, Willows, Calif.; Keokuk (Ia.) Medical College, College of Physicians and Surgeons, 1907; died December 20, aged 79, of cerebral hemorrhage.

Clinton Hillyer Richey ⊕ Valley Head, Ala.; University of Louisville School of Medicine, 1929; died in Port Arthur, Texas, January 18, aged 45, of acute posterior myocardial infarction.

Clair Edward Robison ⊕ Altoona, Pa.; Jefferson Medical College of Philadelphia, 1903; past president of the Blair County Medical Society; on the staff of Altoona Hospital, where he died January 27, aged 69, of myocardial infarction.

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Foreign Letters

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(From Our Regular Correspondent)

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These favorable findings led the majority of observers to decide in favor of domiciliary administration by midwives, but two thought that unsupervised midwives might give the drug for longer periods than was customary in this series and two were against its use by midwives because of occasional effects on the fetal pulse rate and occasional uncooperation by the mother. The material of the report was collated by two research fellows of the Association of Anesthetists, who also acted as observers. They wrote the report and concluded that trichloroethylene is unsuitable for the unsupervised midwife because the concentration of the vapor varies not only with the temperature but also with the amount of shaking the bottle gets, and the depth of the mother's respiration. Her tolerance also varies. They also fear administration in excess and the production of anesthesia. The Council of the College promises that further attempts will be made to produce an apparatus that will fulfil all requirements.

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Lumbar Sympathectomy Performed on the King

The King has undergone the operation of lumbar sympathectomy by Dr. J. R. Learnmonth, professor of surgery at the University of Edinburgh, assisted by Dr. J. Paterson Ross, professor of surgery at the University of London. The operation was without incident. The King has for some months been under the medical treatment of a corps of specialists for difficulties in the circulation in the legs due to arterial troubles. In the left leg the flow of blood has been restored in the main arteries to a satisfactory degree. But in the right leg the main artery is still obstructed and the circulation is still less efficient than in the left through a collateral circulation. With a view to improving the circulation in the right foot right lumbar sympathectomy has been performed.

PARIS

(From Our Regular Correspondent)

Feb. 19, 1949.

Para-Aminobenzoic Acid in Pulmonary Tuberculosis

Para-aminobenzoic acid is used in leukemia, typhus and Rocky Mountain spotted fever, but it is little known as an antituberculous medication. R. Benda, F. Franchel, R. Nataf and J. Uro tried it at the phthisiology and pneumology center of the Beaujon Hospital and have noted a more or less important action in 15 cases of various types of tuberculosis out of 25. Among 6 cases in which the treatment has been continued for three to four months (in 1 case, during one month), through the dose of 0.50 Gm. per day given intramuscularly or intravenously in a 5 per cent solution, elimination of cavities, disappearance of Koch's bacilli, radiologic improvement, and increase in weight were obtained. Among 5 patients treated fifteen to thirty days, with strong doses (24 Gm. to 32 Gm. per day), either 3 to 4 Gm. orally every three hours or 1 Gm. intramuscularly and the remainder orally, the authors have noted: on four occasions a fall of temperature, on five occasions improvement of the general condition and once the diminution of a cavity. On the whole, results are less satisfactory than with prolonged treatment with small doses.

The authors think that the antituberculous action of para-aminobenzoic acid has no connection with the blood concentration, which in equal doses is practically the same whatever may be the mode of administration. There is not only an exclusively bacteriostatic action, but also a pharmacodynamic and vitaminic one. Para-aminobenzoic acid is absolutely atoxic; no patient has experienced the least reaction. The association of para-aminobenzoic acid with streptomycin has given interesting results in 3 cases. In 5 cases the authors have studied the delaying effect on the elimination of streptomycin with the administration of para-aminobenzoic acid in strong doses (32 mg. per day). The dosage of the blood concentration in streptomycin before and after the administration of para-aminobenzoic acid has yielded encouraging suggestions. Research on this subject continues.

Clinical Research on Pulmonary Tuberculosis

The indications and also certain failures of streptomycin in the treatment of pulmonary tuberculosis (other than miliary) have been discussed lately in various medical societies. H. Brocard, G. Thoyer and C. Choffel, at a meeting of the "Société Médicale des Hopitaux," emphasized its usefulness for the treatment of acute lobar tuberculosis and, especially of tuberculous pneumonia; it stops the evolutive process, permits the production, under excellent conditions, of a pneumothorax and makes possible a surgical collapse. Prof. E. Bernard thinks that in the failure of streptomycin in cavitary tuberculosis a deficient vascularization of cavernous regions may have an effect. As to the lung already collapsed by pneumothorax, the action of the antibiotic depends mainly on the type of the lesion. P. Bourgeois and J. Fauvet studied the parallelism between the importance of the vascular lesions and the frequency of the failures of streptomycin. It is efficient in miliary tuberculosis when there is only a minimum of vascular lesions and in the nodular forms when there is only a slight deterioration of the peripheral vessels, causing little damage to blood circulation. As to forms not responding to streptomycin, the authors have found in caseous pneumonia nonvascularized spaces, where the remnants of the arteries appear only in the form of a few elastic fibers. The vessels of the walls of the cavities are partially obliterated with endarteritis, the periphery of the cavern is also badly irrigated; in the lung collapsed through pneumothorax, the arterial capacity is reduced to one third or one quarter, as one of the authors has seen by means of anatomic injections of carmine gelatin; on the other hand, the injections made in the pulmonary artery come out through the pulmonary veins without injecting the peripheral parenchyma. Ameuille, Hinault and Lemoine have confirmed in human beings these anatomic facts, by means of arteriographies in collapsed lungs. The authors emphasize that in cavitary tuberculosis the antibiotic can have an effect only when passed into the cavity.

Of 25 cases presented to the National Academy of Medicine, Maurer (Davos) has obtained interesting results in 24 by cavernostomy and tamponnent with streptomycin. This is realized by the use of a special trocar; it reduces the danger of infection, gaseous embolisms and hemorrhage.

Psychic Factors and Antituberculous Medication

To show the limit of psychotherapy and even of suggestion, P. Bourgeois, R. Genevrier, G. Le Mur and V. Dupont tried an experiment at the Cochin Hospital on patients admitted for treatment with streptomycin, but which was found contraindicated on account of the pulmonary condition. The patients were placed in the streptomycin ward and for six weeks were given isotonic sodium chloride solution. In all 8 patients, the authors noted euphoria and increase of appetite, in 7 cases increase in weight amounting to 3.2 Kg. and in another case to 7 Kg. The temperature was favorably influenced in 2 cases, expectoration was reduced by two thirds in 1 case. The authors did not observe sterilization of the expectoration or indisputable modification of the radiologic picture. In 2 patients with laryngitis, dysphagia disappeared. The laryngologist, not informed of the experiment, found a favorable modification of the laryngoscopic signs. The rest during the stay in the hospital is not to be taken into account, as all the 8 patients had just finished a several month period of complete rest with good food. These trials show that suggestion does not influence the subjective signs only, but also the objective and functional ones. The authors stress, however, that the real value of a treatment for pulmonary tuberculosis is to be shown through the radiologic and bacteriologic examinations.

Congress on Electroencephalography

The second International Congress on Electroencephalography will take place in Paris September 1-3. Professor A. Baudouin and Professor F. Brehmer (Bruxelles) will act as president and vice president. Reports are to be addressed by March 1, at the latest, to Dr. Fischgold, Librairie Masson & C°, 120 Boulevard Saint-Germain, Paris (6°). Communications are to be addressed before May 1, in the United States to Dr. R. Schwab, Massachussetts General Hospital, Boston 14, and, for Europe, to Dr. Remond, 131 Boulevard Malesherbes, Paris (17°). Communications will be then transmitted to the committees of coordination established for each continent.

Correspondence

OCCUPATIONAL DERMATITIS

To the Editor:—Dr. J. G. Downing's recent letter to THE JOURNAL on "Occupational Dermatitis, Disease or Injury?" March 12, page 734, deserves comment and discussion, especially from the medicolegal point of view.

True, in some Southern and other states the laws provide that only injuries which arise out of and in the course of the worker's employment are to be compensated and occupational diseases as such are excluded—these are Alabama, Kansas, Louisiana, Mississippi, Kentucky, Montana, Oklahoma, South Carolina, Vermont, West Virginia and Wyoming. In addition to these states, Colorado, Georgia and South Dakota have schedules of occupational diseases, naming those which are included as being compensable under the law, but dermatitis is not included in this list. In this respect, physicians who recently attended a course on industrial dermatology given by Dr. Downing are correct.

However, exception is taken to the following statement in Dr. Downing's letter:

> "Industrial commissions throughout the country are apt to reject diseases as being compensable. They must be convinced that the disease arises from an injury occurring out of and in the course of the worker's employment. They readily accept abrasions of the skin with secondary infection, bruises, burns, cuts and lacerated wounds, because these conditions are not classified as diseases, but as injuries.
>
> "As the large majority of occupational skin disturbances are the result of the same factors, mechanical, physical and chemical, it behooves the physician and dermatologist to label them as injuries of the skin, and not dignify them by the classification occupational diseases."

There are twenty-one states which have schedule laws which specifically mention dermatitis as being a compensable occupational disease (Arizona, Arkansas, Delaware, Idaho, Iowa, Maine, Maryland, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Rhode Island, Tennessee, Texas, Utah, Virginia, Washington, Wisconsin), and twelve states which have blanket laws which include dermatitis as an occupational disease (California, Connecticut, Florida, Illinois, Indiana, Massachusetts, Michigan, Minnesota, Nebraska, North Dakota, Oregon and Pennsylvania). Moreover, there are other records which show that dermatitis has been compensated as an occupational disease in a considerable number of states over a period of years.

For many years, at least for over a quarter of a century, both industrialists and labor representatives have been desirous of having occupational disease coverage in various industrially developed states, as well as others where there is even a moderate or small amount of industrial production. The reason for this is that both employee and employer get a much "better deal" under the compensation laws than they did when in the so-called old days they relied on common law procedure —when the employer was burdened by paying big damages and in other cases the employee often received no financial aid.

It is believed, therefore, that, if the physician and dermatologist labels occupational skin disturbances injuries of the skin and does not "dignify them by the classification of occupational diseases," this will indeed not only cause considerable confusion, but also tend to nullify the progress made in occupational disease legislation and its appropriate administration.

C. O. SAPPINGTON, M.D., DR.P.H.
Chicago.

MNEMONICS IN EDUCATION

To the Editor:—I have long been interested in the medical students' method of solving the problem which results from the outrageous burden imposed on his memory, particularly during the first two years of his curriculum. It is widely, though tacitly recognized that the student resorts to the use of mnemonics, often salacious and occasionally humorous, to aid him in retaining the vast number of facts for which he is accountable at time of examination.

The readers of this journal will doubtless recall the verse commencing "On old Olympus' tipmost top."

It has occurred to me that this mass of literature constitutes a neglected portion of medical folklore, sharing with other folklore the major attribute that it has been passed by word of mouth from one generation to another. An attempt is being made to collect these literary gems, and several precious specimens have been unearthed. It is assumed that buried in the memories of the subscribers to THE JOURNAL there must be many further examples. With the ultimate intent of compilation of an anthology, I would deeply appreciate hearing from physicians who may remember such mnemonics, in order that this collection may be reasonably complete. I urge that, if any mnemonics are submitted to me, the contributor will include the subject which they were designed to call to mind.

DEWITT STETTEN JR., M.D.
New York 9.

DETERMINATION OF PROTHROMBIN AND USE OF DICUMAROL®

To the Editor:—The conclusion of Duff and Shull (THE JOURNAL, March 19, p. 766) that the most important of all contraindications to the use of dicumarol® is lack of reliable laboratory facilities for prothrombin determinations is worthy of reemphasis, especially in view of the present zeal to employ this potent and effective anticoagulant. However, the reservation that the laboratory facilities for prothrombin determinations be reliable deserves specific qualification in view of the confusion presently prevailing concerning prothrombin time estimation and its expression.

In a query (THE JOURNAL, June 12, 1948, p. 666) Dr. Rivers reflected this confusion when he stated that he investigated the laboratory methods used and the methods of calculation of percentage of prothrombin and found at least two entirely different methods of calculation neither of which correlated with the other. He noted in addition that the method most widely used is to divide the normal time in seconds by the abnormal and report this figure in percentage of normal. This method in addition did not correlate with that advocated by Allen and associates which uses various dilutions of normal plasma for comparison with the unknown. The reply to Dr. Rivers' observations by the consulted authority was that the confusion did exist and he suggested a standardized procedure be employed as outlined by Quick (*Am. J. Clin. Path.* 15: 560 [Dec.] 1945).

The subject of estimation of prothrombin time was discussed by Shapiro and Weiner (THE JOURNAL, Feb. 7, 1948, p. 418), who advocated the reporting of prothrombin time of whole plasma and 12.5 per cent plasma in seconds and not in percentage. The method for prothrombin time estimation described by Shapiro (*Proc. Soc. Exper. Biol. & Med.* 50: 85, 1942, and *Exper. Med. & Surg.* 2: 103 [May] 1944) demands the use of a standardized thromboplastin, and permits the results of the prothrombin estimation to be expressed in seconds, eliminating the need for additional calculation including percentage values which contribute to the confusion.

The recent impressive study by Wright, Marple and Beck (The Journal, Dec. 11, 1948, p. 1074) of anticoagulant therapy of coronary thrombosis with myocardial infarction includes the following suggestion as one of the guides in the administration of dicumarol®: ". . . it is suggested that the Link-Shapiro method with 12.5 per cent diluted plasma be employed as an additional check or safeguard. . . ." This study reported all prothrombin times in seconds and not in percentage.

My experience with the use of anticoagulants in disease states where indicated suggests that judicious use of dicumarol® with simultaneous availability of reliable and adequate laboratory control insures therapeutic exploitation of the drug with minimal hazard of hemorrhage. The use of the Link-Shapiro method for prothrombin estimation, including undiluted and 12.5 per cent diluted plasma, insures such a safeguard.

Felix Wróblewski, M.D., Brooklyn.

HEXACHLOROCYCLOHEXANE IN SCABIES

To the Editor:—I am sorry if in my letter in The Journal, Dec. 25, 1948, page 1253, undue stress was placed on the possible toxicity of hexachlorocyclohexane when used in the treatment of scabies. My chief concern was and is over the widespread use of this material in the South as an insecticide dust for cotton.

In my original letter cases of convulsive death in animals were reported. Also reported was 1 case of human convulsive death following exposure to the insecticide dust. This dust contained hexachlorocyclohexane as its most powerful ingredient but also contained DDT and sulfur.

Although convulsive death was noted in but 1 human case, other symptoms were frequently reported by persons directly exposed to these chemicals. These symptoms included a dry cough, burning sensation on the skin and in the eyes, pronounced loss of weight, vomiting and a bloated feeling in the abdomen. In addition, rupture of the stomach was an as yet unexplained finding at autopsy in the human case reported as well as in 1 of the 6 rabbits experimentally exposed to the insecticide dust mixture.

Robert F. Mobbs, M.D.,
Aberdeen, N. C.

SYRINGE-TRANSMITTED HEPATITIS

To the Editor:—The editorial which appears on page 459 of the February 12 issue of The Journal entitled "Syringe-Transmitted Hepatitis" gives a timely warning, but has been referred to by a maker of disposable syringes and needles as evidence that "ordinary methods of sterilization" do not prevent the transmission of homologous serum hepatitis. In this editorial the paper of Darmady and Hardwick is cited as making the point that the infectious agent of homologous serum hepatitis "is heat resistant, and is not killed by the ordinary methods of sterilization." Darmady and Hardwick cite previous authors, and these statements deserve some analysis. The impression that the agent of homologous serum hepatitis is heat resistant apparently takes its origin in the report of MacCallum and Bauer (*Lancet* 1:622, 1944). These authors wrote, "The icterogenic agent survived heating at 56 C. for one hour, and was still very active after storage for fourteen months in a dried state." The report of Gellis and others (*J. Clin. Investigation* 27:239, 1948) indicates that homologous serum hepatitis virus is inactivated by heating for ten hours at 60 C.

The idea that the infectious agent of homologous serum hepatitis is not killed by ordinary methods of sterilization takes its origin in the original report of Bigger (*Lancet* 1:457, 1943). Bigger refers to the transmission of hepatitis in antisyphilitic treatment, and his description of "ordinary methods of sterilization" referred to rinsing the syringe with sterile water, then with 1:1,000 biniodide of mercury solution, then twice again with sterile water. The syringes were not boiled. In Bigger's summary of the problem he wrote, "It is easy to point to the danger but much less easy to suggest practicable methods for avoiding it. The most reliable one is to use a freshly boiled syringe for each patient."

Salaman and his associates (*Lancet* 2:7, 1944) greatly reduced the incidence of jaundice in patients receiving arsenic for syphilis by a technic of sterilizing syringes by dry heat at 150 to 160 C. for one hour in separate test tubes. In the discussion of this report these authors wrote, "We do not believe that boiling syringes will necessarily suffice without other precautions," and went on to describe the various sources of contamination which existed in ordinary venereal disease clinics in England.

However, after a careful search in the literature, I can find no evidence that boiling of a syringe and needle for twenty minutes will not inactivate the infectious agent of homologous serum hepatitis. If this is true, it is incorrect to state that this virus is not inactivated by ordinary methods of sterilization.

Since it may be possible that I have not discovered some report which describes the survival of the infectious agent of homologous serum hepatitis following boiling for twenty minutes, I would appreciate your giving me any information which describes this finding. However, if in the literature there is no such report, I believe that you should elucidate the editorial which appeared in The Journal, specifying that the "ordinary method" of sterilization referred to did not refer to boiling or to autoclaving. If boiling and autoclaving do not inactivate this virus, many hospitals throughout the country must radically change their methods of sterilization.

Robert T. Thompson, M.D.
Cincinnati.

PRURITUS ANI ET VULVAE

To the Editor:—We have read with great interest the article by Dr. Howard Hailey, "Pruritus Ani et Vulvae," The Journal, March 26, page 837.

Dr. Hailey is to be commended for stressing the importance of an allergic etiology in some of these patients. However, one must disagree strenuously with his statement, "Cutaneous tests for allergy have no legitimate place in the diagnosis and treatment of eczema, and the practice will probably be discontinued in the near future."

Simple scratch tests as ordinarily carried out are valueless in most chronic allergic states. When the simple cutaneous tests are followed by intradermal tests using potent material, in sufficient concentration, positive skin reactions of great clinical importance are obtained. Reliance on elimination procedures alone to solve such cases results frequently in a protracted period of investigation which in many cases can be shortened by carrying out proper intradermal tests.

Our results with a considerable number of patients with pruritus ani et vulvae have been gratifying when all methods of allergic study and treatment have been utilized.

Samuel J. Levin, M.D.
Selma S. Moss, M.D.
Detroit.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* Various Centers. June 20-22, Sept. 12-14. *Part III.* June, various centers. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology, Inc. *Written.* Various Centers. July 15. *Oral.* Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

American Board of Internal Medicine: *Oral.* Philadelphia, June 1-3. *Written.* Oct. 17. Final date for filing application is May 1. Asst. Sec.-Treas. Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

American Board of Neurological Surgery: *Oral.* Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

American Board of Obstetrics and Gynecology, Inc.: *Oral.* Chicago, May 8-14. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

American Board of Ophthalmology: *Oral.* New York, June 11-15; St. Louis, Oct. 15-19; Boston, December. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

American Board of Orthopaedic Surgery. *Part. I.* Indianapolis, May 6-7 and Denver, May 13-14. *Part II.* New York City, Jan. 1950. Final date for filing application for Part II is Aug. 15. Address: Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14, Calif.

American Board of Otolaryngology: New York, May 11-14; Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

American Board of Pediatrics: *Written.* Under local monitors, June 24. *Oral.* Baltimore, May 7-9; Cleveland, Sept. 16-18; New York City, Oct. 21-23; Chicago, Dec. 9-11. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Physical Medicine. Philadelphia, June 4-5. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

American Board of Plastic Surgery: Examinations are given in June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

American Board of Preventive Medicine and Public Health: Washington, D. C., May 14-16. Sec.-Treas., Dr. Ernest L. Stebbins, 615 North Wolfe St., Baltimore.

American Board of Psychiatry and Neurology, Inc. *Special Examination,* October. Place to be announced. Final date for filing application is July 15. December, New York City. Sec. Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Radiology. Atlantic City, June 2-4. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery: *Written.* Various Centers, October 26. Final date for filing application is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

American Board of Urology: *Written,* December. *Oral and Clinical.* Chicago, Feb. 11-15. Final date for receipt of case histories is Sept. 1, 1949. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

Arkansas: * Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 9-10. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

California: *Examination.* San Francisco, June 21-23. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

Delaware: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

District of Columbia: * *Written,* Washington, May 9-10. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., Washington.

Florida: * *Examination,* Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

Georgia: *Examination.* June 8-9, Atlanta and Augusta. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Guam: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam. % F.P.O., San Francisco, Calif.

Hawaii: * *Examination.* Honolulu, July 11-14. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

Idaho: Boise, July 11-13. Sec., Miss Estella S. Mulliner, Bureau of Occupational Licenses, 355 State House, Boise.

Indiana: *Examination.* Indianapolis, June 21-23. Sec. Board of Medical Registration and Examination. Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

Iowa: * *Examination.* Iowa City, June 13-15. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

Kansas: Kansas City, June 1-2. Sec., J. F. Hassig, 905 North 7th St., Kansas City, Kans.

Kentucky: *Examination.* Louisville, June 15-17. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville 2.

Maine: Augusta, July 5-6. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

Maryland: *Examination.* Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 14-15. Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

Massachusetts: *Written.* Boston, July 12-15. Sec., Dr. George L. Schadt, 413 E. State House, Boston.

Mississippi: Jackson, June 21-22. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

Missouri: *Examination.* St. Louis, May 30-31 and June 8-10. Exec. Sec., Mr. John A. Hailey, Box 4. Jefferson City.

Nebraska: * *Examination.* Omaha, June 6-8. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

Nevada: Carson City, May 2. Sec., Dr. G. H. Ross, 112 N. Curry Street, Carson City.

New Jersey: *Examination.* Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

New York: Albany, Buffalo, New York and Syracue, June 28-July 1, Sec., Dr. Jacob L. Lochner, 23 South Pearl St., Albany.

North Carolina: *Endorsement.* Pinehurst, May 9. *Examination.* Raleigh, June 23-25. Sec., Dr. Ivan Procter, 226 Hillsboro St., Raleigh.

North Dakota: * *Written,* Grand Forks, July 5-7. *Reciprocity,* Grand Forks, July 8. Sec., Dr. C. J. Glaspel, Grafton.

Ohio: *Reciprocity.* Columbus, Oct. 15-18. *Written.* Columbus, Oct. 16-17. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Oklahoma: * Oklahoma City, June 8-9. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Pennsylvania: *Examination.* Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.

Puerto Rico: San Juan, Sept. 6-10. Sec., Dr. Luis Cueto Coll, Box 3717, Santurce.

Rhode Island: * *Examination.* Providence, July 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Carolina: *Examination.* Columbia, June 27-29. *Endorsement.* Columbia, May 2, June 27-28, Aug. 1, Sept. 5 and Oct. 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

South Dakota: * *Examination.* Pierre, July 19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

Texas: *Examination.* Austin, June 16-18. Sec., Dr. M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2.

Utah: *Examination.* Salt Lake City, July. Sec., Dept of Registration. Miss Rena B. Loomis. 324 State Capitol Bldg., Salt Lake City.

Virginia: *Examination.* Richmond, June 17-18. *Reciprocity.* Richmond, June 16. Dr. K. D. Graves, 631 First St., S.W., Roanoke.

Washington: * Seattle, July. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

Wisconsin: * *Examination.* Milwaukee, June 28-30. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

Wyoming: Cheyenne, June 20. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

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* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska: Feb. 1950. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

Arizona: Tucson, June 21. Sec., Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

Arkansas: *Examination.* Little Rock, May 3. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.

Colorado: *Examination.* Denver, June 1-2. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

Connecticut: New Haven, June 11. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., New Haven 10.

Florida: *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

Michigan: *Examination.* Detroit and Ann Arbor, May 13-14. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

Minnesota: *Examination.* June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

New Mexico: Santa Fe, April 22. Sec., Miss Marguerite Kilkenny, 110 W. Houghton Street, Santa Fe.

Oregon: Portland, June 18, Sept. 3 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

South Dakota: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St., Yankton.

Tennessee: Memphis, July 8-9. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

Wisconsin: Milwaukee, June 4. Sec., Prof. W. H. Barber, Ripon College, Ripon.

Medical Motion Pictures

FILM REVIEWS

The Feeling of Hostility. (Mental Mechanisms Series, No. 2.) 16 mm. black and white, sound, 1,113 feet (1 reel), showing time thirty-two minutes. Produced in 1948 by the National Film Board for the Mental Health Division of the Department of National Health and Welfare in cooperation with the Allan Memorial Institute of Psychiatry of McGill University and the Royal Victoria Hospital, Montreal. Procurable on rental or purchase from the National Film Board of Canada, 620 Fifth Avenue, New York 20.

This motion picture portrays the life of a girl from age 3 to early adulthood who has been raised in a Canadian urban environment. It attempts to point out the development of her character traits and social adjustment and the influence of certain traumatic experiences in childhood and adolescence. At the end of the story a psychiatrist comments briefly on the significant events in the picture and indicates how the character of the heroine acquired certain basic personality deficiencies in spite of a superficially successful social and economic adjustment.

The title is rather misleading in that it does not take into account the roles played by rejection, sublimation, etc., and the impression perhaps created by the psychiatrist commentator that the opportunity for psychiatric help is available for all persons with emotional problems. These minor criticisms are far outweighed by the psychologic validity and sympathetic appeal of the subject matter, since it does not deal with a severe neurosis or psychosis but with the kind of emotional difficulties which warp many normal personalities.

This is a superior production which should be comprehensive and effective for showing to professional and administrative hospital staffs, classes in abnormal psychology, parent-teachers' associations and similar lay groups; however, in the nonprofessional groups, it is recommended that the showing of the picture be followed by discussion with a psychiatrically trained leader. Photography is well done. Narration is clear.

The Right to Hear. 16 mm., color sound, 1,118 feet (1 reel), showing time thirty-one minutes. Prepared by The Department of Otolaryngology and Oral Surgery with the cooperation of The Department of Speech, State University of Iowa. Produced in 1943 by and procurable on rental ($4.50) or purchase from the Bureau of Visual Instruction, Extension Division, State University of Iowa, Iowa City.

This film excellently depicts the problem represented by the school child handicapped by impaired or total loss of hearing. The picture emphasizes how seating arrangement in the classroom, use of hearing aids and instructions in lip reading, tutoring and special classes for the deaf and the hard of hearing aid in the educational adjustment of the afflicted child.

The following criticisms hardly detract from the value of the motion picture but should be mentioned. The sequence in which the little girl brings her report card to her mother represents practices in report card marking which no longer prevail. This could be substituted by portraying the difficulties with these children experienced in our schools as they were conducted forty years ago when numerical grading was universal and no provision was made for the handicapped child.

The interview of "Mr. and Mrs. Crane" with the two dignitaries entrenched behind the desk was painful to witness, because of the apparent lack of finesse on the part of the two men bent on separating the parents from their boy. A properly planned interview could have maneuvered the two parents into demanding that their boy be given the advantages enjoyed by the other deaf children in a school toward maintenance of which these parents were paying taxes.

This well planned picture should be inspiring to physicians, medical students and nurses, as well as to parent-teachers' associations and other organizations interested in the welfare of these children.

The photography is excellent.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Charitable Hospitals: Liability for Negligence of Servant.—The plaintiff filed suit to recover damages for personal injuries alleged to have been sustained as a result of the negligence of a servant of the defendant hospital while the plaintiff was a paying patient in such hospital. From a judgment in favor of the defendant the plaintiff appealed to the Court of Appeals of Maryland.

It was conceded in this case that the defendant hospital was an eleemosynary corporation and, said the Court of Appeals, the principle that charitable corporations are free from tort liability has long been a basic part of the law of this state. Not only has the legislature granted exemptions to charitable corporations from various forms of taxation, continued the court, in order that their field of usefulness might be enlarged, but it has made direct appropriations to the same end. To establish a liability at this time would run counter to legislative policy and increase potential demands upon the state.

In 1947, continued the court, House Bill 99 proposed, in its original form, to estop any charitable corporation from pleading as a defense to tort claims the fact that it was such an institution and further provided that the liability should not exceed the amount of liability insurance carried. The bill failed of passage. S. 411 at the same session was introduced as a substitute and was adopted. This bill provided that "each policy issued to cover the liability of any charitable institution for negligence or any other tort shall contain a provision to the effect that the insurer shall be estopped from asserting, as a defense to any claim covered by said policy, that such institution is immune from liability on the ground that it is a charitable institution." It is clear, said the Court of Appeals, that the legislature has accepted the doctrine announced by this court and dealt with the matter in its own fashion. The plaintiff in the instant case has not brought himself within the terms of the section quoted. Accordingly the judgment in favor of the defendant hospital was affirmed. *Howard v. South Baltimore General Hospital, 62 A. (2d) 574 (Md., 1948).*

Workmen's Compensation Act: Compensability for Tuberculosis Contracted by Employee of State Sanitarium.—The plaintiff filed a proceeding under the Workmen's Compensation Act to recover an award for an injury sustained during the course of his employment with the Detroit Tuberculosis Sanitarium. The plaintiff worked in the kitchen of the defendant sanitarium, washing dishes used by patients. Pursuant to a rule of the defendant for the protection of its employees, the plaintiff was x-rayed every six months, and on Aug. 26, 1946, it was discovered that he had tuberculosis. The compensation commission found that the disease from which the plaintiff was suffering was contracted during the course of his employment with the defendant, and it therefore granted an award of compensation. From this award the defendant and its insurer appealed to the Supreme Court of Michigan.

In 1937 the Workmen's Compensation Law was amended so as to provide compensation for disabilities resulting from so-called occupational diseases. Section 1 of part 7 of the statutes provides:

> "The term 'personal injury' shall include a disease or disability which is due to causes and conditions which are characteristic of and peculiar to the business of the employer and which arises out of and in the course of the employment. Ordinary diseases of life to which the public is generally exposed outside of the employment shall not be compensable."

We think, said the Supreme Court, that pulmonary tuberculosis must be regarded as an "ordinary disease" of life. From that conclusion, however, it does not necessarily follow that a disability resulting therefrom is not in any circumstances compensable under the Michigan statute. The statute does not place all "ordinary diseases" in a noncompensable class, but, only those "to which the public is generally exposed outside of the employment." The evidence in this case indicates that the plaintiff was exposed in his employment to the risk of contracting tuberculosis in a far greater degree and in a wholly different manner than is the public generally. To interpret the above statutory provision properly, the court continued, it must be read in conjunction with the act as a whole and particularly with other provisions relating to the same specific matter. In this connection Section 3 of part 7 is significant. It provides: "If an employee is disabled or dies and his disability or death is caused by a disease and the disease is due to the nature of the employment in which such an employee was engaged and was contracted therein, he or his dependents shall be entitled to compensation for his death or for his disablement."

We do not think, said the Supreme Court, that the provisions in question must necessarily be read as conflicting. The nature and hazards of the employment itself are in each instance important factors. In the case at bar the plaintiff, as the compensation commission found, contracted tuberculosis because of the nature of the employment and in the course of the employment. Construing the provisions herein quoted together and in the light of the general purpose of the compensation act, we think it was the intention of the legislature to allow compensation for disability resulting from a disease contracted in the course of the employment and brought about by the nature of such employment and the conditions under which it was carried on. In the circumstances of this case, the provisions authorizing compensation for disability due to a disease contracted in the course of the employment and resulting from the nature thereof are applicable. Accordingly the Supreme Court affirmed the award of the compensation commission in favor of the plaintiff employee. *Mills v. Detroit Tuberculosis Sanitarium, 35 N.W. (2d) 239 (Mich., 1948).*

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Digestive Diseases, Fort Wayne, Ind.

15:397-432 (Dec.) 1948

Pathogenesis of Hepato-Jaundice and Its Surgical Approach. B. O. Pribram.—p. 397.
Diarrhea. M. H. Streicher.—p. 404.
*Abdominal Apoplexy. W. Saphir.—p. 408.
Use of Tripelennamine Hydrochloride (Pyribenzamine) as Topical Anaesthetic. V. Moseley.—p. 410.
Inhibition of Lysozyme Activity. J. N. Moss and G. J. Martin.—p. 412.
Idiopathic Megaduodenum: Report of Case. J. E. McClenahan and B. Fisher.—p. 414.
Nutrition and Efficiency. F. Hoelzel.—p. 416.

Abdominal Apoplexy.—Saphir says that if bleeding of genital origin in females and bleeding due to trauma are excluded spontaneous hemoperitoneum is a rare incident. It is this spontaneous intraperitoneal hemorrhage due to rupture of an intra-abdominal blood vessel, independent of any trauma to the abdomen, that has been termed "abdominal apoplexy." The author reviews the literature and reports a case of his own observation. The underlying pathology was mesenteric arteriosclerosis. During an observation period of twelve years the clinical symptoms were indistinguishable from those of the "irritable colon" syndrome. Mesenteric arteriosclerosis should seriously be considered in the etiology and the differential diagnosis of the irritable colon syndrome.

American Journal of Physiology, Baltimore

154:369-554 (Sept.) 1948. **Partial Index**

Relative Distribution of Cardiac Output in Acute Hypoxemia. M. Feldman Jr., S. Rodbard and L. N. Katz.—p. 391.
Lung Function Studies. II. Respiratory Dead Space. W. S. Fowler. —p. 405.
Role of Vagi in Crossed Phrenic Phenomenon. P. O. Chatfield and S. Mead.—p. 417.
Role of Herring-Breur Reflex Under Deep Pentothal Anesthesia. J. C. Scott, E. A. Reed, D. Saris and H. P. Redondo Ramirez.—p. 428.
Proprioceptively Induced Reflex Patterns. G. N. Loofbourrow and E. Gellhorn.—p. 433.
*Role of Carbon Dioxide and of Hindbrain in Agene-Induced Canine Epilepsy. M. L. Silver and G. H. Pollock.—p. 439.
Adaptation to Experimental Motion Sickness in Dogs. R. L. Noble. —p. 443.
Plasma Protein Concentrations and Organ Weights of Castrated and Testosterone Propionate Treated Rats. J. H. Leathem.—p. 459.
Mechanisms of Desoxycorticosterone Action: II. Relation of Sodium Chloride Intake to Fluid Exchange, Pressor Effects and Survival. D. M. Green, D. H. Coleman and M. McCabe.—p. 465.
Comparison of Cyclopropane and Ether Anesthesia on Lymph Production. H. K. Beecher, Madeleine F. Warren and Anna Murphy.—p. 475.
Cholinesterase Levels in Plasma and Tissues. B. Mendel, Rosemary D. Hawkins and Margaret Nishikawara.—p. 495.
Effect of Certain Choleretic Agents on Excretion of Pigment and Bromsulfalein in Bile. A. Cantarow, C. W. Wirts, W. J. Snape and L. L. Miller.—p. 506.
Some Physiologic Effects Associated with Chronic Caloric Restriction. R. K. Boutwell, Miriam K. Brush and H. P. Rusch.—p. 517.
Salyrgan and Renal Tubular Secretion of Para-Aminohippurate in Dog and Man. R. W. Berliner, T. J. Kennedy Jr. and J. G. Hilton. —p. 537.
Renal Glutaminase. E. Mylon and J. H. Heller.—p. 542.

Carbon Dioxide in Agene®-Induced Canine Epilepsy.—Silver and Pollock cite previous observations which proved that dogs fed with bread made from flour treated with nitrogen trichloride had convulsions and showed typical preconvulsive electroencephalographic changes. The authors present studies which demonstrated that in animals which have typical preconvulsive electroencephalograms, convulsions can be induced by the inhalation of 20 per cent carbon dioxide and 80 per cent oxygen. Thus inhalation of this mixture is synergistic with the toxicity induced by the ingestion of flour treated with nitrogen trichloride. It accentuates existing electroencephalographic abnormalities and can precipitate a seizure in a susceptible animal. These are seen first in leads over the hindbrain and characteristically when the inhalation starts or shortly after it is terminated.

Cancer Research, Baltimore

8:241-300 (June) 1948. **Partial Index**

Malignant Tumors of Uterus and Vagina in Untreated Mice of PM Stock. W. U. Gardner and S. C. Pan.—p. 241.
Influence of Thiouracil on Carcinoma Induced by 2-Acetaminofluorene. K. E. Paschkis, A. Cantarow and J. Stasney.—p. 257.
*Further Report on Yolk Sac Cultivation of Tumor Tissue. A. Taylor, Nell Carmichael and Theresa Norris.—p. 264.
Heterologous Transplantation of Cancer of Childhood. E. J. Eichwald. —p. 273.
Hepatic Riboflavin and Tumor Formation in Rats Fed Azo Dyes in Various Diets. A. C. Griffin and C. A. Baumann.—p. 279.

Yolk Sac Cultivation of Tumor Tissue.—Taylor and his associates point out that about five years ago a technic was described by means of which rat and mouse tumors could be grown in the yolk sacs of embryonated eggs. Since the publication of the initial reports, this manner of growing tumor tissue has been used continuously in their laboratory. The present report is made with the object, first, of describing the yolk sac technic as modified by experience with several hundred thousand inoculations and, secondly, to report the discovery of a C3H mammary carcinoma which grows with unusual facility by this method of cultivation. The authors stress that the method is simple. Tumor tissue grown in eggs is made up of a pure culture of cancer cells. Nonmalignant tissue of the mouse or rat has not been maintained in the egg beyond the first transplant. The question has naturally arisen as to the possibility of cultivating human tumor tissue in a continuous egg to egg series. It has been considered that the relatively slower growth rate of most human cancer tissue would preclude its cultivation in eggs. However, the growth rate of a tumor in the egg may be much greater than it is in the host animal. This has been shown for the C3H mammary carcinoma considered in this paper.

Journal of Clinical Investigation, Cincinnati

27:691-866 (Nov.) 1948. **Partial Index**

Measurement of Glomerular Filtration Rate in Premature Infants. H. L. Barnett, K. Hare, Helen McNamara and Ruth Hare.—p. 691.
Estimations of Decrease in Effective Blood Volume when Pressure Breathing at Sea Level. J. P. Henry, I. Hendrickson, E. Movitt and J. P. Meehan.—p. 700.
Resistance to Action of Endotoxins of Enteric Bacilli in Man. H. R. Morgan.—p. 706.
Comparison of Constant Infusion and Urine Collection Technics for Measurement of Renal Function. E. Y. Berger, S. J. Farber and D. P. Earle Jr.—p. 710.
Evaluation of Neurogenic and Humoral Factors in Blood Pressure Maintenance in Normal and Toxemic Pregnancy Using Tetraethylammonium Chloride. A. A. Brust, N. S. Assali and E. B. Ferris.—p. 717.
Urinary Excretion of Amino Acids Following Rapid Injection of a Solution of Amino Acids in Man. R. D. Eckhardt and C. S. Davidson. —p. 727.
Method for Quantitative Determination of Cephalin-Cholesterol Flocculation Reaction. A. Saifer.—p. 737.
Intravenous Glucose Tolerance Test in Pregnancy. D. G. Johnson and R. W. Bonsnes.—p. 745.
Genetics of Gout and Hyperuricemia—Analysis of Nineteen Families. C. J. Smyth, C. W. Cotterman and R. H. Freyberg.—p. 749.
Studies on Carbohydrate Metabolism in Patients with Gastric Cancer. Defective Hepatic Glycogenesis; Effects of Adreno-Cortical Extract. N. F. Young, J. C. Abels and F. Homburger.—p. 760.
Effect of Sodium Chloride Depletion on Blood Pressure and Tetraethylammonium Chloride Response in Hypertension. W. W. Stead, M. F. Reiser, S. Rapoport and E. B. Ferris.—p. 766.
Thrombin Formation. I. Role of Calcium, Serum Ad-Globulin and Tissue Thromboplastin. Jessica H. Lewis and J. H. Ferguson.—p. 778.
Study of Antifibrinolysin Activity in Human Plasmas During Pathological States. M. M. Guest, B. M. Daly, A. G. Ware and W. H. Seegers.—p. 793.
Blood Volume Determination in Human with Red Cells Containing Radioactive Phosphorus (P^{32}) and with Pure Human Albumin. F. J. Kelly, D. H. Simonsen and R. Elman.—p. 795.
Specificity of Immune Human Serum Antihyaluronidase. R. T. Thompson and Frances E. Moses.—p. 805.
Renal and Circulatory Factors in Edema Formation of Congestive Heart Failure. A. P. Briggs, D. M. Fowell, W. F. Hamilton and others. —p. 810.
Uropepsin Excretion by Man. I. A. Mirsky, S. Block, S. Osher and R. H. Broh-Kahn.—p. 818.

Journal of Experimental Medicine, New York

88:569-666 (Dec.) 1948

Inhibition of d-Glyceraldehyde 3-Phosphate Dehydrogenase by Specific Antiserum. E. G. Krebs and V. A. Najjar.—p. 569.
Hereditary Osteopetrosis of Rabbit. Louise Pearce and W. H. Brown. —p. 579.
Associative Reactions of Pneumonia Virus of Mice (PVM) and Influenza Viruses: Effects of pH and Electrolytes upon Virus-Host Cell Combinations. F. M. Davenport and F. L. Horsfall Jr.—p. 621.
Susceptibility of Hamster to Mouse Encephalomyelitis Virus. D. J. Dean and G. Dalldorf.—p. 645.

Journal Industrial Hygiene & Toxicology, Baltimore

30:319-380 (Nov.) 1948

Relation of Particle Size of Uranium Dioxide Dust to Toxicity Following Inhalation by Animals: Preliminary Report. H. B. Wilson, G. E. Sylvester, S. Laskin, C. W. LaBelle and H. E. Stokinger.—p. 319.
Toxicological Studies on Certain Commercial Silicones and Hydrolyzable Silane Intermediates. V. K. Rowe, H. C. Spencer and S. L. Bass. —p. 332.
Tissue Responses to Physical Forces: I. Pathogenesis of Silicosis; Preliminary Report. S. M. Evans.—p. 353.
*Technical Aspects of Los Angeles Smog Problem. H. F. Johnstone. —p. 358.
Rapid Method for Determination of Nitrogen Oxides in Air. J. F. Flagg and R. Lobene.—p. 370.
Comparative Evaluation of Methods Employed to Express the Degree of Toxicity of Compound. W. B. Deichmann and Estelle G. Mergard. —p. 373.

The Los Angeles Smog Problem.—Johnstone discusses the situation that has arisen in recent years in the Los Angeles area as the result of increased atmospheric pollution. The nuisance of low visibility, which frequently restricts airport operations and at times even affects automobile traffic, and the occasional concentrations of pollutants that affect the eyes and throat have aroused a public demand for relief. Establishment of the Los Angeles County Air Pollution Control District in 1947 under state law has done much to unify the efforts to control the sources of pollution. The Los Angeles smog problem results from the topographic and meteorologic features of the area which control the escape of the industrial and domestic pollution. Elimination of the nuisance will require more rigorous standards than those in other cities, where the wind and normal atmospheric turbulence rapidly diffuse the contaminants. Exact information on the nature of the smog is still lacking, but certain aspects of the problem are related to the general properties of aerosols. It is estimated that the nonhygroscopic nonvolatile particles are approximately the size of the wavelength of light and exist at concentrations of about 0.1 mg. per cubic meter. Attention is called to the contributions of sulfur compounds to the smog and eye irritation, and methods of eliminating them from industrial gases are reviewed. There are new developments in the equipment for the control of dust and fumes, and these and other methods of control of industrial contamination give promise of success in alleviating the condition.

Journal of the Mount Sinai Hospital, New York

15:175-280 (Nov.-Dec.) 1948

*Structure of Metabolic Process in Nephron. Jean Oliver.—p. 175.
Dumbbell Tumors of Spine. I. Cohen.—p. 223.
Treatment of Hypertension by Accelerated Sodium Depletion. R. S. Megibow, H. Pollack, G. H. Stollerman and others.—p. 233.
Resuscitation in Operating Room: Report of Two Cases. S. S. Lyons. —p. 240.
Preoperative and Postoperative Care of Children. E. E. Arnheim. —p. 246.
Present Status of Surgical Treatment for Coarctation of Aorta. E. S. Hurwitt.—p. 252.
Method of Obtaining Intracardial Electrograms During Cardiac Catheterization. B. Kisch, B. M. Schwartz, F. H. King and others.—p. 257.
Hypernephroma in Horseshoe Kidney. G. D. Oppenheimer.—p. 260.
Duodenal Fistula as Complication of Regional Ileitis. H. Masters. —p. 264.

Metabolic Process in Nephron.—Oliver injected 500 to 1,000 mg. of diluted egg white into the peritoneal cavity of the rat and eighteen hours later, after the peak of its elimination in the urine, examined the kidneys by various histologic methods. In some of the experiments an injection of 0.00075 Gm. of uranium acetate was given three days before the injection of egg white. Results were as follows: Egg white filters through the glomerulus and appears in the urine. During this excretion droplets appear in the cytoplasm of the cells in the middle third of the proximal convolution, but not elsewhere in the nephron. The analogous and identical appearance within the cells of droplets of easily identified dyed protein or hemoglobin leaves no doubt that the droplets of the author's experiments are the structural evidence of the absorption of the egg white. Preliminary serologic tests have shown that they contain egg white. Concomitant with the appearance of the droplets, the mitochondrial rodlets dissolve and disappear in this segment of the proximal convolution but remain unchanged in other parts of the convolution. Those renal cells of a nephron which have been damaged by a toxic agent do not show the formation of droplets, though the contiguous cells in the same nephron which have escaped the damage are filled with droplets. The rod-droplet transformation within the functioning renal cells is considered as one structural aspect of a cytologic mechanism of transport and storage which can operate in two directions. During both the secretion and the absorption of certain materials by the renal epithelium a common intracellular structural change occurs which results in an increase in the concentration of the transported substance within the cell. The essential mechanism of this concentration consists of a combination in the droplet form of the transported material, dye or protein, with a specific intracellular constituent, the mitrochondrial substance of the rodlets. If the renal cells are lacking in this essential mitrochondrial substance, as regenerated cells are, no absorption by droplets occurs. After the concentration of the transported substance within the cells, if it is a physiologic entity of relative simple form, such as an amino acid, it is promptly metabolized or possibly passed to the blood stream unchanged. More complex materials, such as hemoglobin, are more slowly metabolized, and a foreign material such as egg white requires weeks for its final disposal.

Journal of Nervous and Mental Disease, New York

108:361-454 (Nov.) 1948

Ideational Motor Plan: Role of Parieto-Occipital Region in Planned Acts. J. M. Nielsen.—p. 361.
*Tetra-Ethyl Ammonium Chloride as Adjunct in Treatment of Psychovisceral Manifestations of Anxiety. E. Bell Jr. and L. J. Karnosh. —p. 367.
Alteration of Neurotic Pattern by Use of CO_2 Inhalations. L. J. Meduna. —p. 373.
Life Situations, Emotions and Bronchial Asthma. T. F. Treuting and H. S. Ripley.—p. 380.
Severe Rigidity in Performance and Thought in Case of Presenile Degenerative Disease. M. Nathanson and S. B. Wortis.—p. 399.
Autonomic Nervous System Changes Following Electric Shock Treatment. D. H. Funkenstein, M. Greenblatt and H. C. Solomon.—p. 409.
Variations of Body Weight and Menstruation in Mental Illness and Their Relation to Shock Treatments. L. B. Kalinowsky.—p. 423.
Inclusion Bodies Associated with Destruction of Nerve Cells in Scrub Typhus, Psychoses and Multiple Sclerosis. J. W. Papez.—p. 431.

Tetraethyl Ammonium Chloride in Psychovisceral Manifestations of Anxiety.—Bell and Karnosh say that tetraethyl ammonium is usually administered in the form of the chloride salt, which is available in a 10 per cent solution. A transient but maximal effect can be produced by the intravenous injection of as little as 100 mg. Larger doses simply prolong the effect. For most purposes 300 mg. is an adequate intravenous dose, 500 mg. being the maximum. Injection of tetraethyl ammonium chloride will relieve pylorospasm, vasospasm and pain of biliary colic, ureteral colic and intestinal obstruction. This antispasmodic action plus effects such as decreased sweating, increased peripheral blood flow and subjective feeling of relaxation caused the authors to inquire into the possible application of the drug in modifying some of the distressing psychosomatic or psychovisceral features of anxiety neurosis. Tetraethyl ammonium chloride was always used as an adjunct while psychotherapy was being employed. Most patients experience a subjective sense of relaxation; they lie quietly and frequently fall asleep. The symptoms most satisfactorily ameliorated were the gastrointestinal disturbances, cardiac palpitation, globus hystericus, excessive sweating and the secondary symptoms of insomnia and early morning fatigue. In 6 of 38 patients in whom the symptoms were those of psychovisceral tension alone, each injection produced relief for forty-eight to seventy-two hours. In 15 patients in whom there were elements of conversion, the improvement on tetraethyl ammonium injections was satisfactory although incomplete. In a third group of 17 patients, the psychiatric interviews revealed that the anxiety components at visceral levels were adulterated by definite conversion components and the clinical picture was a mixture. The unconscious inclination to amplify and to perpetuate the disease was evident. When patients in this group were told of possible side actions of the treatment, many returned to report that such symptoms had aggravated their troubles. In 10 patients with psychasthenia the effect was as unpredictable and varied as in conversion neurosis. In general, tetraethyl ammonium chloride serves as a useful symptomatic device in weakening at least one of the links in the psychovisceral complex responsible for some of the subjective and objective discomforts in patients with anxiety neuroses.

Journal of Nutrition, Philadelphia

36:523-652 (Nov.) 1948. **Partial Index**

Effects of Autoxidation on Antiacrodynic Potency of Fats and Linoleic Esters. F. A. Kummerow, T. K. Chu and Patricia Randolph.—p. 523.

Studies on Beriberi in Endemic Sub-Tropical Area. J. Salcedo Jr., E. O. Carrasco, F. R. Jose and R. C. Valenzuela.—p. 561.

Liver Damage and Growth in Rabbit. E. J. Thacker and G. H. Ellis. —p. 579.

Relative Biologic Values of Proteins in Cereal Grains. B. Sure and Frances House.—p. 595.

Pteroylglutamic Acid Requirement of Rat and Characteristic Lesion Observed in Spleen of Deficient Animal. C. F. Asenjo.—p. 601.

Lactation Response as Limited by Feeds Produced Under Two Systems of Soil Fertilization. K. A. Kendall, W. B. Nevens and O. R. Overman.—p. 625.

Effect of Previous Diet on Ability of Animals to do Work During Subsequent Fasting. L. T. Samuels, R. C. Gilmore and R. M. Reinecke.—p. 639.

Journal of Pediatrics, St. Louis

33:675-812 (Dec.) 1948

Visualization of Aorta and Its Branches by Retroarterial Diodrast Injection. T. H. Burford and M. J. Carson.—p. 675.

Electrophoretic Studies of Plasma and Urinary Proteins in Children with Lipoid Nephrosis. J. I. Routh, E. L. Knapp and C. K. Kobayashi. —p. 688.

The Let-Down Reflex in Human Lactation. M. Newton and N. R. Newton.—p. 698.

Ollier's Dyschondroplasia. T. G. Potterfield and J. Gonzalez.—p. 705.

Therapeutic Use of Peritoneal Lavage for Anuria Caused by Toxic Nephritis: Report of Case. E. A. Moody.—p. 710.

*Topical and Parenteral Penicillin Therapy in Ritter's Disease: Report of Four Cases with Recovery. R. O. Warthen and J. C. Sherburne. —p. 717.

Two Unusual Vascular and Cardiac Anomalies: I. Vascular Ring of Esophagus and Trachea with Patent Ductus Arteriosus Origin of Left Subclavian and Carotid Arteries: II. Persistent Atrioventricular Communis and Aortic Dextroposition with Mongolism. K. G. Wurtz and N. B. Powell.—p. 722.

Radiation Therapy for Wilms' Tumor of Kidney. S. G. Schenck. —p. 734.

*Note on Methemoglobinemia and Heinz Body Formation in Cats Fed Commercial Crayons. S. S. Spicer, C. H. Hanna and P. A. Neal. —p. 739.

Note on Poisoning Due to Ingestion of Wax Crayons. H. Brieger and Jeanne E. Mazur.—p. 742.

Toxicity of Wax Crayons in Animals. F. B. Flinn, J. Axelrod and B. B. Brodie.—p. 743.

Nonsensitization to Repeated Tuberculin Testing. J. Schwartzman, Mae Schneider and Margaret E. Crusius.—p. 746.

Failure of Gamma Globulin to Prevent Varicella. M. Schaeffer and J. A. Toomey.—p. 749.

Electroencephalography in Behavior Problem Children. C. Arden Miller and Margaret A. Lennox.—p. 753.

Penicillin in Ritter's Disease.—Warthen and Sherburne say that most reports on Ritter's disease indicate that the mortality rate in this disorder is around 50 per cent, and some have reported rates as high as 76 per cent. They found that in 4 consecutive cases with this disorder, in which they administered penicillin topically and parenterally, all patients survived. The penicillin was given intramuscularly every three hours in doses of 30,000 or 50,000 units and penicillin ointment was placed generously over the entire body or applied to the lesions every six or eight hours. The authors assume that probably all forms of exfoliative dermatitis are merely reactions of the body to systemic or local irritants. The terminology applied to each case of exfoliative dermatitis is generally determined by the irritant involved plus the clinical course of the disease. Although in this report the authors are concerned chiefly with Ritter's disease (dermatitis exfoliativa neonatorum or keratolysis neonatorum), they believe that Leiner's disease, Savill's disease, pemphigus neonatorum, acute epidermolysis of the newborn, impetigo of the newborn and possibly drug or contact dermatitis of the newborn are probably merely variants of this same condition, since the clinical pictures are rather similar. Ritter's disease usually appears between the second day of life and the fifth week. It may be sporadic or epidemic. The majority of deaths due to Ritter's disease are the result of complications, such as pneumonia, furuncles, abscesses, intestinal ulcers, infections, sepsis, gangrene, lymphadenitis, Waterhouse-Friderichsen syndrome and other endocrine disturbances. The favorable results obtained in the described cases were due to the prevention of complications. The most satisfactory form of therapy to date consists of general maintenance, warmth (heat cradle), no clothes, no baths, as little handling as possible, and intramuscular administration of penicillin and penicillin ointment applied topically (so that the entire body is covered and moist at all times). It is suggested that these measures be employed for several days after complete recovery in order to avoid a recurrence.

Methemoglobinemia and Heinz Body Formations After Ingestion of Crayons.—Spicer and his co-workers say that recently clinical reports have appeared concerning intoxication from wax crayons. Infants after eating red, orange or yellow crayons became cyanotic, and methemoglobinemia and other manifestations of poisoning by aromatic amines developed. In the studies reported here crayons were fed to cats. Methemoglobinemia and Heinz body formation occurred in a small percentage of cats fed commercial crayons. The results were more striking if only animals fed red or red-orange crayons are considered, in which group one third of the exposures resulted in methemoglobinemia and Heinz body formation. No conclusion can be drawn from these results regarding poisoning in human beings. Relatively large doses were given without evidence of serious intoxication other than the methemoglobinemia which per se is innocuous. Cats are probably the most susceptible species to methemoglobinemia.

Physiological Reviews, Baltimore

28:383-464 (Oct.) 1948

Origin of Melanophores and Their Role in Development of Color Patterns in Vertebrates. Mary E. Rawles.—p. 383.

Anticonvulsants. J. E. P. Toman and L. S. Goodman.—p. 409.

Gastric Absorption. L. Karel.—p. 433.

Physiology of Adipose Tissue. E. Wertheimer and B. Shapiro.—p. 451.

Proc. Soc. Exper. Biol. & Med., Utica, N. Y.

69:191-394 (Nov.) 1948. **Partial Index**

Effect of N,N-Dibenzyl-beta-Chloroethylamine Hydrochloride (Dibenamine) on Autonomic Functions and Catatonia in Schizophrenic Subjects. H. E. Medinets, N. S. Kline and F. A. Mettler.—p. 238.

Serum Neutralizing Antibodies to Infecting Strain of Virus in Poliomyelitis Patients. W. McD. Hammon and E. C. Roberts.—p. 256.

*Aureomycin in Treatment of Pneumococcal Pneumonia and Meningococcemia. H. S. Collins, T. F. Paine Jr. and M. Finland.—p. 263.

Absorption of Aortic Atherosclerosis by Choline Feeding. L. M. Morrison and A. Rossi.—p. 283.

Relationship of Heparin Activity to Platelet Concentration. C. L. Conley, R. C. Hartmann and J. S. Lalley.—p. 284.

Drug Sensitivity of Hemolytic Streptococci Isolated from Cases of Scarlet Fever Treated with Penicillin. T. L. Hartman and L. Wein-Stein.—p. 314.

Incidence of Mammary Tumors in Castrate and Non-Castrate Male Mice Bearing Ovarian Grafts. R. A. Huseby and J. J. Bittner.—p. 321.

Regression and Reabsorption of Mammary Tumors by Extracts of Degenerating Amphibian Skin. O. M. Helff.—p. 336.

*Testicular Degeneration as Result of Microwave Irradiation. C. J. Imig, J. D. Thomson and H. M. Hines.—p. 382.

Aureomycin in Pneumonia and Meningococcemia.—According to Collins and his associates aureomycin, the new antibiotic, is active in vitro and in experimental animals against gram-positive and gram-negative bacteria and is also effective against experimental infections with rickettsias and with viruses of the psittacosis lymphogranuloma venereum group. The findings in 4 cases of pneumococcic pneumonia and in 1 case of meningococcemia are presented. The results in these cases appear to be comparable to those obtained in similar cases in which treatment was with penicillin or with effective sulfonamide drugs. There were no toxic effects attributable to aureomycin in any of these cases. Aureomycin warrants further clinical trial in these and other types of infections.

Testicular Degeneration as Result of Microwave Irradiation.—Imig and his co-workers comment on the fact that lower temperatures exist in the scrotum than in the abdominal cavity and that exposure of the testes to abdominal temperatures results in disorganization of the germinal epithelium of the seminiferous tubules and impairs spermatogenesis. In this study they are concerned with the effects of 12 cm. electromagnetic waves and of infra-red irradiations on the testes of adult albino rats. A single ten minute exposure to microwaves at a temperature of 35 C. as measured in the central areas of the testes caused testicular degeneration in all cases. In some experiments testicular damage resulted from a single exposure at temperatures between 30 and 35 C. Testicular damage was not found in experiments in which infra-red irradiation was applied for ten minutes at 38 C. but was observed when applied at a temperature of 40 C. and above. The type of degeneration resulting from exposure to microwaves could not be distinguished from that produced by infra-red. Thus it has been demonstrated that testicular damage will result from 12 cm. irradiations at a temperature below that of the abdominal cavity and below that necessary to cause injury by exposures to infra-red rays. This finding suggests that damage may result in part from factors other than heat. It is suggested that precautions should be taken by those working in the field of high frequency electromagnetic generators and by those giving treatments with microwave generators.

Psychoanalytic Quarterly, Albany, N. Y.

17:433-590 (Oct.) 1948. **Partial Index**

Depersonalization and Body Ego with Special Reference to Genital Representation. L. Berman.—p. 433.
Equivalents of Matricide. R. M. Lindner.—p. 453.
Prince Hal's Conflict. E. Kris.—p. 487.
Spirituality and Beauty in Artistic Experience. H. B. Lee.—p. 507.
Transference in Borderline Neuroses. A. Stern.—p. 527.
On the Meaning of Losing Teeth in Dreams. S. Lorand.—p. 529.

Public Health Reports, Washington, D. C.

63:1567-1610 (Dec. 3) 1948

Studies of Pulmonary Findings and Antigen Sensitivity Among Student Nurses: III. Pulmonary Infiltrates and Mediastinal Adenopathy Observed Among Student Nurses at Beginning of Training. Lydia B. Edwards, I. Lewis and Carroll E. Palmer.—p. 1569.

63:1611-1634 (Dec. 10) 1948

Q Fever Studies in Southern California: V. Natural Infection in Dairy Cow. W. L. Jellison, R. Ormsbee, M. D. Beck and others. —p. 1611.
Carbon Tetrachloride Poisoning: Report on 10 Cases at U. S. Marine Hospital, Seattle, Washington, Since 1937. G. A. Abbott and M. J. Miller.—p. 1619.
Serological Characterization of North Queensland Tick Typhus. D. Lackman and R. R. Parker.—p. 1624.

Radiology, Syracuse, N. Y.

51:767-922 (Dec.) 1948

*Role of Irradiation in Management of Carcinoma of Breast. E. P. Pendergrass and D. Kirsh.—p. 767.
Spindle-Cell Tumors of Gastro-Intestinal Tract. W. L. Palazzo and M. D. Schulz.—p. 779.
Analysis of X-Ray Findings in 405 Cases of Benign Gastric and Pyloric Ulcer. W. A. Russell, S. Weintraub and H. L. Temple.—p. 790.
Roentgenologic Deformities of Pyloric Portion of Stomach with Absence of Surgical and Pathological Findings. E. L. Jenkinson and F. J. Hamernik.—p. 798.
X-Ray Observations Before and After Vagotomy. W. W. Furey.—p. 806.
Trichobezoar or Hair Ball: Case Report. J. D. Peake.—p. 816.
Cancer of Thyroid. L. Guzman.—p. 820.
Notching of Ribs Without Coarctation. P. Batchelder and R. J. Williams. —p. 826.
Perivascular Injection of Thorotrast and Its Sequelae. H. I. Amory and R. F. Bunch.—p. 831.
Protection Requirements of One-Million-Volt (1-Mv.) and Two-Million-Volt (2-Mv.) Roentgen-Ray Installations. C. B. Braestrup and H. O. Wyckoff.—p. 840.
Broad and Narrow Beam Attenuation of 500- to 1,400-Kv. X-Rays in Lead and Concrete. H. O. Wyckoff, R. J. Kennedy and W. R. Bradford.—p. 849.
Thrombocytopenic Purpura Following Therapeutic Administration of Radioactive Sodium: Case Report. H. W. Jacox.—p. 860.
Excretion of Radium from Mouse. Joanne Weikel and E. Lorenz. —p. 865.
Highlights of Past and Challenge for Future. W. D. Coolidge.—p. 871.

Irradiation in Carcinoma of Breast.—Of the patients in the 406 cases surveyed by Pendergrass and Kirsh 350 were subjected to surgery and 56 were treated by irradiation alone—the latter treatment being used because the lesion was considered inoperable, surgery was refused by the patient or there was some medical contraindication. Two hundred and five of the patients were operated on by surgeons of the Hospital of the University of Pennsylvania, and 145 were operated on elsewhere. Of the patients subjected to surgery, 188 received postoperative roentgen irradiation to the operative site and lymph node areas, while 162 received no irradiation except when metastatic or recurrent disease developed. The authors failed to detect any significant improvement in the five year survival rate of the patients with carcinoma of the breast that could be attributed to postoperative roentgen therapy. Irradiation alone may serve to control some lesions fairly adequately. Twelve patients who received neither irradiation nor surgery lived an average of fourteen months after first being seen, and an average of thirty-eight months after first noticing the disease. Forty-four patients treated only by irradiation lived an average of nineteen months after first noticing the disease. Four of this latter group survived at least five years after first being seen. There was a high incidence of herpes zoster; 16 cases occurred among a total of 406. Fourteen of the patients with herpes received preoperative and postoperative irradiation, or both, only 2 receiving no irradiation. In 15 cases the herpes zoster occurred on the thorax and in 1 on the face. The disease appeared from five months to three years after treatment of the breast lesion. In 12 of the 16 cases, however, there was evidence of metastatic disease either before or after the appearance of the cutaneous disease. This would tend to support the commonly accepted idea that herpes in such cases was due to involvement of the spinal ganglions by metastatic cancer.

Rocky Mountain Medical Journal, Denver

45:1073-1162 (Dec.) 1948

Changing Concepts in Field of Diabetes Mellitus. C. F. Kemper. —p. 1092.
*Cancer and General Practitioner. P. B. Price.—p. 1096.
Ten Commandments of Prepayment Medical Care (For the Participating Physician). T. A. Hendricks.—p. 1101.
Doctor Cooperation with Prepaid Medical Care Plans. G. B. Leitch. —p. 1104.
Ergonovine Compared with Methergine in Third Stage of Labor. J. R. Bunch.—p. 1110.
A Rural Health Program. R. S. Liggett.—p. 1112.
Distribution of Physicians and Physicians' Services in Colorado, 1948: II. Age Factors. H. J. Dodge, M. M. Clapper and W. Darley. —p. 1113.

Cancer and the General Practitioner.—Price stresses that the general practitioner is in the front line of the war against cancer. He must educate the public by wise instruction, by daily dissemination of information that will induce men and women to seek medical advice whenever signs of cancer first appear. The physician must be keenly alert to manifestations of the dread disease. He must not allow rush of work or laziness to stand in the way of careful examination. Simple diagnostic procedures such as a finger in the rectum, a speculum in the vagina, a cystoscope in the bladder, barium in the colon, a roentgen examination of the chest or stomach, and, above all, biopsies, go far toward solving the problem of cancer. In cases of doubt, one may justifiably adopt a policy of watchful waiting, but no physician should stand by waiting for the classic signs of advanced cancer to appear. Every general practitioner should refer his patients freely to the best available surgeon, clinic or medical center for study and treatment.

Texas State Journal of Medicine, Fort Worth

44:485-560 (Nov.) 1948

Early Experiences in Clinical Pathology in Texas. B. F. Stout.—p. 500.
Major Factors in Reduction of Maternal and Infant Mortality. H. Emerson.—p. 503.
Minimal Diagnostic Survey for Sterility. C. C. Boehler.—p. 507.
Uterotubal Insufflation with Use of Kymograph. E. R. Chapman. —p. 512.
Endometrial Dating. M. H. Blend.—p. 516.
Trauma and Interruption of Pregnancy. A. W. Diddle.—p. 520.
Management of Parturient. N. C. Smith.—p. 524.
Etiology of Eclampsia: Evaluation of Some of More Recent Theories. H. W. Johnson.—p. 527.
Continuous Caudal Analgesia in Obstetrics. J. C. Klein.—p. 532.
Cesarean Section. C. L. McGehee.—p. 536.
Some Factors Which Affect Results in Breech Delivery. W. T. Robinson.—p. 540.
Postpartum Care. R. Luikart.—p. 543.
Repair of Recurrent Prolapsus Uteri. D. R. Knapp.—p. 547.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Brain, London

71:229-342 (Sept.) 1948. **Partial Index**

Asphasia and Artistic Realization. T. Alajouanine.—p. 229.
Intraneural Topography of Sciatic Nerve and Its Popliteal Divisions in Man. S. Sunderland and L. J. Ray.—p. 242.
*Lumbar Puncture Headache. G. W. Pickering.—p. 274.
Observations on Foramen of Magendie in Series of Human Brains. M. L. Barr.—p. 281.
Projection of Centromedian Nucleus of Human Thalamus. T. McLardy.—p. 290.
Demonstration of A and C Fiber Components in Babinski Plantar Response and Pathologic Flexion Reflex. E. Kugelberg.—p. 304.

Lumbar Puncture Headache.—Pickering says that it is not uncommon for a headache to develop after puncture of the spinal theca. Pain may be more or less generalized over the calvarium but is often especially severe at the back of the head and may spread into the neck, shoulders or back. The neck may feel stiff. The feature which distinguishes this headache from all others is its exacerbation when the patient sits up and its relief when the patient lies down. The headache may begin a few hours to a few days after the puncture, and it usually lasts twenty-four hours or more. The author reviews observations on 11 patients with lumbar puncture headache, in 7 of whom spinal pressure was measured. Cerebrospinal fluid pressure in the horizontal posture was observed to be about atmospheric in 6 cases and within the lower limit of normal in 1. In all these 7 cases injection of 30 to 50 cc. of isotonic solution of sodium chloride, sufficient to restore the pressure to the normal or upper normal range, abolished the headache. Headache was invariably increased by sitting up and relieved by lying down. It was usually increased by compression of the jugular veins in the neck and by shaking the head. Not infrequently, the headache throbbed with the pulse and in about half the cases was relieved by compression of the carotid artery in the neck. Lumbar puncture headache is ascribed to caudad displacement of the base and posterior parts of the brain with tension on the anchoring structures, particularly the tissues around the large arteries at the base.

British Journal of Cancer, London

2:87-176 (June) 1948. **Partial Index**

Role of Genes and Their Relationship to Extrachromosomal Factors in Development of Mammary Gland Tumors in Mice. W. E. Heston.—p. 87.
Mammary Tumor Inducing Factor and Genetic Constitution. L. Dmochowski.—p. 94.
Mutations Induced by Carcinogens. M. Demerec.—p. 114.
*Plasmagene Theory of Origin of Cancer. C. D. Darlington.—p. 118.
"Infective" Transformations of Cells. R. E. Billingham and P. B. Medawar.—p. 126.
Indications of Heritable Nature of Non-Susceptibility to Rous Sarcoma in Fowls. A. W. Greenwood, J. S. S. Blyth and J. G. Carr.—p. 135.
Heredity in Human Cancer. T. Kemp.—p. 144.
Inheritance of Xeroderma and Its Chromosome Mechanism. P. C. Koller.—p. 149.
Twin Studies and Other Genetical Investigations in Danish Cancer Registry. T. Busk, J. Clemmesen and A. Nielsen.—p. 156.
*Family Histories of 459 Patients with Cancer of Breast. D. W. Smithers.—p. 163.
Genetical Study of Human Mammary Cancer. L. S. Penrose, H. J. Mackenzie and M. N. Karn.—p. 168.

Plasmagene Theory of Cancer.—Darlington points out that tumor development can be understood only in terms of cells and particles. This has been made clear in the last few years by increased knowledge in three directions: 1. The induction of cancer by chemical agents is now seen to be a genetic mutation, although outside the nucleus and inherently outside the germ line. 2. There is evidence that between the hereditary plasmagenes and the naturally infectious viruses there is an intermediate class, the proviruses. 3. These three classes of particle are conditional and interchangeable. Cancer-producing particles fall into all three. The origin of cancer can therefore be ascribed to mutations in cytoplasmic determinants, indifferently infectious or noninfectious, which make themselves visible by causing the resumption of growth. Further, the study of plasmagene and virus inheritance in relation to differentiation reveals a competitive propagation of cytoplasmic particles. This explains both the genetic control and the secondary development of cancer with its potential dedifferentiation and metastasis.

Family Histories in Breast Cancer.—Since 1944 Smithers has taken a detailed family history from all patients reporting with carcinoma of the breast. He has 459 family records which are reasonably complete. These data contain errors of inadequate information and faulty recollection. There are, however, reasons for believing that they represent an underestimate rather than an overestimate of the cancer incidence in these families. Of 459 mothers, 66 were known to have died of cancer, and of these 25 had cancer of the breast. Of 459 fathers, 30 were known to have died of cancer, but none had cancer of the breast. There were 1,008 sisters. Of the 29 known to have died of cancer, 11 had cancer of the breast. There were also 11 sisters living who had received treatment for cancer of the breast. There were 1,059 brothers. Eighteen had died of cancer, but none had had cancer of the breast. One was alive after treatment for cancer. The author says that a preliminary analysis of the data suggests that there is a significantly high death rate from cancer of the breast in the families of patients with that disease, but no higher death rate from other forms of cancer than would be expected in the general population. He finds no evidence that cancer of the breast tends to develop earlier in patients whose relations are known to have suffered from the disease.

British Journal of Ophthalmology, London

32:857-920 (Dec.) 1948. **Partial Index**

Intravitreal Injection of Penicillin: Study on Levels of Concentration Reached and Therapeutic Efficacy. A. Sorsby and J. Ungar.—p. 857.
Preliminary Note on Treatment of Hypopyon Ulcer by Crystalline Penicillin in Adrenalin in Doses in Excess of 50,000 Units Injected by Subconjunctival or Retrobulbar Routes. A. Sorsby and J. Ungar.—p. 878.
Symptoms of Pulse in Central Retinal Artery. W. Kapuściński.—p. 881.
Observations on Experimental Pneumococcal Infection of Rabbit's Cornea and on Their Treatment with Penicillin. J. Macaskill and M. Weatherall.—p. 892.
Technic of Iridencleisis. L. Weekers and R. Weekers.—p. 904.
Carbonic Anhydrase and Cataracta Lentis. A. Bakker.—p. 910.

British Journal of Venereal Diseases, London

24:137-176 (Dec.) 1948. **Partial Index**

Pathology of Gonorrhea. A. H. Harkness.—p. 137.
Syphilis, Tuberculosis, and Sickle-Cell Anemia: Report of Case. A. I. Suchett-Kaye.—p. 148.

British Medical Journal, London

2:969-1006 (Dec. 4) 1948

"Towards a Lower Pediatric Mortality." W. Gaisford.—p. 969.
*Temperature Recording in Sick Children. A. Moncrieff and B. J. Hussey.—p. 972.
Infantile Diarrhea and Vomiting: Review of 456 Infants Treated in Hospital Unit for Enteritis. M. B. Alexander.—p. 973.
*Multiple Myeloma Treated with Stilbamidine and Pentamidine. A. E. Brewer.—p. 978.
Sepsis in Relation to Tumors: Clinical Implications of Experimental Study. P. Browning.—p. 983.
*Antihistamine Drugs and Radiation Sickness. W. M. C. Brown and R. B. Hunter.—p. 984.
Patency of Veins After a New Technic of Cutting-Down for Transfusion. A. J. Palmer and A. H. C. Walker.—p. 985.

Temperature Recording in Children.—Moncrieff and Hussey made simultaneous temperature recordings in mouth, rectum, groin and axilla in 32 children taken at random in a general medical ward. They observed differences which seem of practical importance and conclude that axilla and groin should be discarded as sites for temperature readings.

Treatment of Multiple Myeloma.—On the basis of encouraging results obtained by Snapper with stilbamidine® (4,4′-stilbenedicarboxamidine) and pentamidine® (4,4′-[pentamethylenedioxy]dibenzamidine) in patients with multiple myeloma, Brewer treated 6 patients with stilbamidine® by Snapper's method. In 2 of them pentamidine® was also used. Four of the patients died and 2 have made some clinical recovery. These results do not compare favorably with those of Snapper, who reported 7 out of 15 showing continued improvement. The outstanding clinical feature of treatment with stilbamidine® is the relief from pain.

Antihistamine Drugs and Radiation Sickness.—According to Brown and Hunter radiation sickness is a syndrome characterized by drowsiness, fatigue, nausea and vomiting. Since there is some evidence that histamine plays a part in the production of this syndrome, the use of antihistamine drugs has been advocated by some investigators, who reported amelioration of radiation sickness after such medication. Brown and Hunter made their studies on patients undergoing postoperative irradiation with roentgen rays for carcinoma of the breast. Seventeen patients were given an antihistamine drug; 15 were given an inactive preparation, and 15 were given nothing in addition to the irradiation. They found that not only did the antihistamine drug fail to prevent radiation sickness, but patients receiving the drug showed a greater incidence of constitutional upset while having roentgen therapy than did either of the two control groups. In some cases the administration of the drug during roentgen irradiation produced a toxic erythema in addition to a constitutional upset. It is suggested that the local release of histamine resulting from roentgen irradiation and leading to vasodilatation and alteration in capillary permeability may be of physiologic importance, and that this type of reaction to injury may well play an important part in preserving the integrity of the organism. The administration of agents such as antihistamine drugs during irradiation may interfere with this protective mechanism.

Indian Medical Gazette, Calcutta

83:255-300 (June) 1948. **Partial Index**

Clinical Manifestations of Abdominal Tuberculosis (From Surgical Aspect). A. K. Dutta Gupta.—p. 258.
*Hippuric Acid Synthesis Test as Aid to Prognosis in Congestive Heart Failure. K. S. Mathur.—p. 262.
Preventive Value of Paludrine in Malaria. K. L. Basu Mallik.—p. 271.
Studies on Ringworm: Part VI. Ringworm of Glabrous Skin; Statistical Survey. L. M. Ghosh, D. Panja and N. C. Dey.—p. 272.

Hippuric Acid Test in Congestive Heart Failure.—According to Mathur it is difficult to assess the gravity of the immediate outlook and the average duration of life after the onset of congestive heart failure. Investigators have tried to find a workable test. Early involvement of the liver, situated at the gateway to the heart with its hepatic veins practically opening into the right auricle, in congestive heart failure has been made the focus of this study. Reviewing the previous investigations on this problem, the author says that Wahi in 1946 suggested that the cardiologist may find hippuric acid synthesis test of great value in gaging the prognosis in cases of congestive heart failure. Thirty-six cases of congestive heart failure in various grades of decompensation were studied by means of intravenous hippuric acid tests on admission, during treatment and on discharge, and the results were compared to the clinical state of the patients. The hippuric acid excretion has invariably been found to be low in right ventricular failure, corresponding with the extent and degree of cardiac decompensation, and has proved a definite help in the follow-up of cases. The test has proved of no value in left ventricular failure.

Medical Journal of Australia, Sydney

2:481-508 (Oct. 23) 1948

*Studies on Tremor-Rigidity Syndrome: I. Surgical Treatment of Human Subjects. W. L. Reid.—p. 481.
Effect of Surgery Upon Canine Tremor-Rigidity Syndrome. V. J. McGovern, B. D. Wyke, M. E. Dodson and J. Steel.—p. 492.
Findings of a Chest X-Ray Center. J. N. Burgess.—p. 494.

Surgical Treatment of Tremor-Rigidity Syndrome.—According to Reid two outstanding symptoms of Parkinson's syndrome are tremor and rigidity. Other symptoms may develop as the disease progresses, but they rarely occur in the initial stages. For this reason the term "tremor-rigidity syndrome," following the suggestion of Fulton, has been selected. The author reviews previous attempts at a surgical treatment of this condition and then describes the technic employed in the 15 cases reviewed here. Results of removal of what has been estimated to be Brodmann's area 6 and (in more recent cases) the posterior part of area 8 are presented. Areas 4 and 4S are carefully preserved. The work is still in the experimental stage. No guarantee of improvement can be offered, although in most of those patients operated on to date there has been a reduction in many of the symptoms. This operation cannot aim at a surgical "cure," as the initial damage to various parts of the brain has already occurred and is probably irreparable. The sole object has been to remove some, at least, of the cortical automatic control and so relieve the symptoms by bringing muscle tone and movement more under voluntary control. This object has been partially achieved. The best that can be claimed so far is sufficient improvement to transpose the patient from a completely dependent invalid into one who can get about and look after his own personal wants without having to rely on someone else. Since the operation is serious, it should not be undertaken lightly. In view of the improvement obtained in the majority of patients the author feels justified in continuing this work. Experience has taught that the chances of good results are less in patients over the age of about 55 years and in patients in whom the syndrome is advanced or of long standing. The question arises whether this operation, when perfected, not only will produce a reduction of the patient's existing symptoms, but will also arrest the progress of the condition. Although in 1 patient improvement has been maintained for twenty-seven months, the final assessment cannot be made for many years.

Practitioner, London

161:437-516 (Dec.) 1948. **Partial Index**

Treatment of Acute Infections of Respiratory Tract. N. L. Rusby.—p. 437.
Care of Elderly Bronchitic Patient. H. Goadby.—p. 446.
Cough Mixtures. R. B. Hunter.—p. 449.
Child's Diet in Winter. S. Graham.—p. 454.
Chilblains and Their Treatment. G. B. Dowling.—p. 465.
Management of Deafness. M. R. Dix and M. S. Harrison.—p. 469.
Treatment of Undescended Testicles. S. L. Simpson.—p. 483.

Thorax, London

3:185-252 (Dec.) 1948

Provocative Talk on Pulmonary Tuberculosis. H. M. Davies.—p. 189.
Pneumonia in North-West London, 1942-4: II. Pneumonias Not Attributable to Specific Bacterial Infection. R. E. Glover, J. H. Humphrey, H. Joules and E. D. van der Walt.—p. 214.
Control of Hemorrhage in Extrapleural Pneumothorax. K. S. Mullard.—p. 233.
Anesthetic Problems Associated with Giant Tension Cysts of Lung. T. C. Gray and F. R. Edwards.—p. 237.
Pulmonary Fibrosis in Generalized Scleroderma: Review of Literature and Report of Four Further Cases. W. E. Lloyd and R. D. Tonkin.—p. 241.
*Extrafascial Pneumothorax. B. Konstam.—p. 247.

Extrafascial Pneumothorax.—Konstam points out that in the treatment of pulmonary tuberculosis by thoracoplasty combined with Semb apicolysis circumstances often arise which make it desirable to maintain over a prolonged period the relaxation obtained after the first stage operation. This is mainly the case when subsequent stages have to be delayed on account of a spread to the same or to the opposite lung, or when a pleural effusion, intercurrent illness or general debility is present. By keeping the lung apex and the attached periosteum down at the level to which apicolysis has lowered it, the benefits of the first stage should be retained. Since 1935 the author has experimented with the artificial maintenance of the Semb space, and has attempted it in 31 patients. At first he confined it to cases in which complications had arisen. Later, when a good proportion of patients with apical cavities not larger than about 2 cm. in diameter could be successfully treated by a three rib thoracoplasty combined with temporary extrafascial collapse, the indications for the artificial maintenance of the Semb space were extended to patients with limited apical disease and small cavitation. The Semb space is maintained by the introduction of sodium chloride solution, air or oil, and the lung apex remains at its lowered level until rib regeneration occurs. Only one reference to this method has been found in the literature. The successful use of the one stage three rib upper thoracoplasty with artificial maintenance of the Semb space has these principal advantages: the thoracoplasty is more selective and impairs the vital capacity considerably less than the conventional methods. Bilateral treatment could be applied in many more cases than are deemed suitable at present, and the deformity caused by the sinking forward of the scapula which follows the more extensive thoracoplasty is obviated. The method was a failure in 7 of the 31 cases.

Acta Pharmacologica et Toxicologica, Copenhagen

4:199-400 (Nos. 3 & 4) 1948. Partial Index

Excretion of Methanol and Formic Acid in Man after Methanol Consumption. A. Lund.—p. 205.
Vasoconstrictor and Hemostatic Properties of Shed Blood. G. C. Brun.—p. 251.
Experimental Studies on Pharmacology of Activated Charcoal: III. Adsorption from Gastro-Intestinal Contents. A. H. Andersen.—p. 275.
*Sensitizing Effect of Tetraethylthiuramdisulfide (Antabus) to Ethyl Alcohol. J. Hald, E. Jacobsen and V. Larsen.—p. 285.
Studies on Effect of Tetraethylthiuramdisulfide (Antabus) and Alcohol on Respiration and Circulation in Normal Human Subjects. E. Asmussen, J. Hald, E. Jacobsen and G. Jørgensen.—p. 297.
Formation of Acetaldehyde in Organism After Ingestion of Antabus (Tetraethylthiuramdisulfide) and Alcohol. J. Hald and E. Jacobsen.—p. 305.
Pharmacological Action of Acetaldehyde on Human Organism. E. Asmussen, J. Hald and V. Larsen.—p. 311.
Effect on Experimental Animals of Antabus (Tetraethylthiuramdisulfide) in Combination with Alcohol. V. Larsen.—p. 321.

Sensitizing Effect of Tetraethylthiuramdisulfide (Antabus®) to Ethyl Alcohol.—Hald and his co-workers point out that Koelsch reported in 1914 that workers who handled cyanamide experienced flushing of the face, headache, accelerated and deepened respiration and pulse, and a feeling of giddiness after they had taken only a small quantity of alcohol. The fungus coprinus atramentarius likewise has been found to cause these symptoms when ingested together with alcohol. The authors report their discovery that tetraethylthiuramdisulfide has a sensitizing effect to alcohol. In several papers appearing in this journal they describe various investigations which they made on this substance, which under the proprietary term of antabus® is being employed in combating alcoholism. They review the toxicology and the pharmacology and describe studies on its absorption and elimination. When tetraethylthiuramdisulfide is given to human subjects they are sensitized to alcohol. The intake of alcohol is followed by flushing of the face and general uneasiness. The substance does not interfere with the elimination of ethyl alcohol.

Annales Pædiatrici, Basel

171:257-404 (Nov.-Dec.) 1948. Partial Index

*Rubella in Mother as Cause of Congenital Malformations in Infants. A. Hottinger.—p. 257.
*Rubella or Other Infections or Toxic Factors in Course of Gestation in Genesis of Congenital Malformations and Dystrophies. G. Lefebvre and J. Merlen.—p. 266.
Two Cases of Congenital Toxoplasmosis in Infants. M. Lelong.—p. 279.
Toxoplasmosis and Virus Diseases in Pregnant Women: Influence on Fetus. A. Wallgren.—p. 284.
Streptomycin in Miliary and Meningitic Tuberculosis: Study of 85 Cases. G. Frontall.—p. 286.
Serum Proteins in the Fetus and in Nurslings Less Than a Year Old. R. Martin Du Pan and D. Moore.—p. 290.
Heterologous Plasma Therapy in Nurslings. R. Ramos and W. Oppenheimer.—p. 300.
*Milk Embolism of Pulmonary Air Passages as Frequent Cause of Rapid Unexpected Death in Infants. J. Marie.—p. 313.

Rubella in Mother as Cause of Congenital Malformations in Infant.—Hottinger reports the case of a child with congenital cataract of the right eye and probably an open ductus arteriosus with septum defect, but without cyanosis. The weight increase was retarded and the subcutaneous fat and musculature were deficient. The appetite remained poor and no teeth had erupted when the child was a year old. The fact that the mother of this child had had an attack of rubella during her second month of pregnancy is regarded as cause of these congenital defects. The author suggests that an attack of rubella in the mother during her first three months of pregnancy might be considered as a justification for the interruption of pregnancy.

Pathogenesis of Congenital Malformations.—Lefebvre and Merlen reviewed the records of 2,247 pediatric cases with regard to pathologic conditions occurring during gestation. In 34 cases the mother had been ill during pregnancy; in the 14 cases, in which the disorder had occurred after the third month of gestation, the fetus had not been influenced by it. In the 20 cases in which the maternal illness had occurred during the early part of the pregnancy, the following defects were detected in the fetus: 4 cataracts, 6 defects of the heart, 6 instances of backwardness with microcephaly, 2 of mongolism, 1 of cleft palate and 1 of syndactylism. The disorders observed in the mothers of these defective infants included: rubella (fetal cataract resulted), 1 case; influenza, 4; therapeutic shock in the course of infection, 3; septicemia, twice; scarlet fever, 1, and mumps, 1. The authors do not feel justified in drawing definite conclusions, but believe that besides rubella numerous other infections or toxic factors that occur during early pregnancy may exert an adverse effect on the product of conception.

Milk Embolism as Cause of Sudden Death in Infants.—The cause of death is frequently obscure in sudden deaths in infants. Bronchopneumonia, pneumonia and enlarged thymus are frequently mentioned as causes. Marie says that clinical and anatomic observations have convinced him that there is a simple mechanism not considered by earlier investigators, a milk or food embolism in the pulmonary airways. Such an embolism is produced by the aspiration of the gastric contents into the lung, which may occur in the course of vomiting or of regurgitation that may not even be expelled externally. It is especially likely during vomiting in weak infants or in those with infections. The author describes the histopathologic changes caused by the milk or by the gastric contents in the bronchi and the alveoli and suggests that even if the definite cause of death has not been suspected, the proof may be furnished by careful microscopic study of the lungs.

Archivos Peruanos de Patologia Clínica, Lima

2:355-470 (Sept.) 1948. Partial Index

*Histopathogenesis of Anemia in Peruvian Verruca. O. Urteaga B.—p. 355.

Anemia of Peruvian Verruca.—Urteaga B. reports observations on 40 patients with Peruvian verruca in various stages of anemia. He describes the anemic syndrome, a characteristic of the first phase of the disease. The changes in the peripheral blood demonstrate that anemia of Oroya fever is of hemolytic nature. The rapid and acute development of this form of anemia can be compared only with that of other forms of acute anemia, especially the Lederer type. This form of anemia is due to erythrophagic hyperplasia of the reticuloendothelial system of the hemopoietic organs, as stimulated by Bartonella parasitization of the erythrocytes. A certain degree of acute anemia causes anoxemia of the hemopoietic organs, which react with a response of hemopoietic hyperplasia and hyperregeneration of the erythrocytes. This reaction increases through natural immunity or through the effects of proper therapy up to a certain degree, at which the parasitization of erythrocytes and hemolysis stop and the production of normal erythrocytes with consequent disappearance of anemia occurs.

Medizinische Klinik, Munich

43:629-660 (Nov. 19) 1948. Partial Index

Nitrogen Mustards in Treatment of Hodgkin's Disease. R. Merk.—p. 629.
*Fatal Aplastic Anemia After Urethane Treatment of Myeloid Leukemia. H. Böttner.—p. 636.
Inhibition of Ovarian Function by Estrogenic Hormones. K. Krogner.—p. 638.
Regulations for Establishment of a Blood Donor System in Germany. T. Messerschmidt.—p. 640.
*Concurrence of Severe Anemia with Diaphragmatic Hernia. E. Frey.—p. 650.

Fatal Aplastic Anemia Following Urethane Treatment of Myeloid Leukemia.—Böttner describes the case of a woman, aged 45, who was treated with urethane for chronic myeloid leukemia. At first, only 19 Gm. was available, but after this amount had been administered, a gratifying improvement was noted. To tide the patient over the period when no urethane was available, the woman was given three large blood transfusions, but in spite of these the leukocyte count increased again. Later treatment with urethane was resumed; the average daily dose was 5 Gm. until a total of 126 Gm. had been given. Since oral medication was accompanied by nausea and vomiting, urethane was given at first partially and later completely by intravenous injection. An aplastic type of anemia developed which progressed constantly, and the patient died in spite of all therapeutic efforts. That this course was brought on by urethane medication was supported by the fact that 2 similar cases have been reported in the British literature. The author points out that in addition to the desirable damaging effect of urethane on the immature myeloid cells there is danger of simultaneous serious damage to the erythropoietic parts of the marrow. The author warns against the administration of large doses of urethane.

Concurrence of Severe Anemias and Diaphragmatic Hernia.—Frey asserts that the concurrence of anemia and diaphragmatic hernia is so frequent that a diaphragmatic hernia should be searched for in every unexplained case of iron deficiency anemia. Usually these anemias are the result of hemorrhages, but in some cases hemorrhages cannot be proved and in these cases a pathogenetic explanation is difficult. Some, particularly American authors, have regarded disturbances in iron resorption as responsible, whereas French authors assume disturbances in the resorption of iron, plus a disturbance in the intrinsic factor. The fact that the gastric chemistry is usually normal throws some doubt on these theories of pathogenesis. Frey cites 2 patients in whom diaphragmatic hernia was associated with anemia of undetermined origin. In the first of these it proved impossible to detect a source of bleeding, but previous hemorrhages from superficial mucosal erosions could not be excluded. In the second patient observations over a period of twelve months finally disclosed blood in the gastric juice, which suggests that the source of the hemorrhage was in the stomach. It is advisable to search for anemia and hemorrhages in every case of diaphragmatic hernia.

Nordisk Medicin, Stockholm

40:1969-2024 (Oct. 29) 1948. Partial Index

Obesity and Its Treatment. R. Frisk.—p. 1974.
*Massive Doses of Bismuth Subcarbonate in Treatment of Ulcer. S. Kemp.—p. 1979.
Thiocyanate Treatment in Hypertension. K. Aas.—p. 1984.
Pulsation of Liver. E. Forsgren.—p. 1993.
Culture of Laryngeal Smears for Detection of Tubercle Bacilli. A. Gilje.—p. 1995.
Simple Method for Penicillin Spray Treatment of Infants. P. Karlberg and J. Lind.—p. 1996.
Sodium Nicotinic Acid Intravenously in Headache After Lumbar Puncture or Encephalography. K. Liedblom and S. Radner.—p. 1997.
Glomus Tumor Developed from Coccygeal Gland. K. K. Klein.—p. 1999.

Massive Doses of Bismuth Subcarbonate in Treatment of Ulcer.—Kemp says that 315 patients with chronic gastric and duodenal ulcer were treated with massive doses of bismuth subcarbonate in Bourget's solution for a long period but in gradually decreasing amounts: 10 Gm. bismuth subcarbonate, three times daily, ten to fifteen minutes before meals, for two months; then twice daily for the succeeding months, and, finally, once daily for the last two months. Other drug treatment was given only in exceptional cases. Simultaneous dietetic treatment for hospitalized patients began with liquid-mush diet advancing to purée diet after about two weeks, when the patients were usually allowed up. Ambulant patients were started with light purée diet and were gradually advanced to light ordinary diet after four to six months. The immediate results were: 267 free from symptoms, 23 improved and 25 unchanged. The results were about the same for hospitalized and ambulant patients. In 231 cases the symptoms disappeared almost immediately, presumably because the bismuth acts as a covering treatment of the ulcer. Of 19 patients with pronounced pylorospasm 4 were operated on and 15 given medical treatment as outlined, with results about as in other chronic cases. The total impression is that treatment with bismuth as described is superior to other treatment in giving immediate freedom from symptoms. No relapses were noted during the first two months and few (3 per cent) during the following months of treatment. Recurrences were mild, in only 3 cases accompanied by manifest hemorrhage and in 21 cases disappearing rapidly after brief repeated treatment with bismuth compound with slight limitation of diet; in 27 cases of somewhat severer disease hospital treatment was necessary in only 6. Recurrences took place in 3 cases. The rapid control of a flare-up of the disorder in ambulant patients by purely local treatment is believed to testify against the importance often assigned to the nervous factor in the fluctuations in the course of the disease and calls for assignment of the central place in ulcer therapy to local treatment.

Prensa Médica Argentina, Buenos Aires

35:2265-2306 (Nov. 26) 1948. Partial Index

*Gangrene of Penis Caused by Endarteritis Obliterans. A. V. Di Cio and G. A. Lista.—p. 2273.

Gangrene of Penis from Endarteritis Obliterans.—Di Cio and Lista state that their case is the first to be reported in the literature. The patient, 33 years of age, presented a history of gastric ulcer. Some time later his right leg was amputated because of gangrene. Six years after amputation the patient was hospitalized with gangrene of the penis. In the course of the treatment an attack of tachycardia and acute peritonitis supervened. Necropsy revealed a malignant form of thromboangiitis obliterans involving the right iliac artery, which was found to be obliterated. This localization accounted for the gangrene of the leg. Later, the obstruction of the arteries supplying the corpora cavernosa and the penis caused the gangrene of the penis. The involvement of the coronary arteries caused infarction of the apex of the heart. Occlusion of the branches of the abdominal aorta produced ulceration of the intestine and of the stomach. Perforation of the ulcer was followed by fatal fibrinopurulent peritonitis.

Presse Médicale, Paris

56:849-864 (Dec. 4)1948

Vaccination Against Tetanus in Allied Armies During World War II. Its Results. G. Ramon.—p. 849.
*Abuse of and Dangers Involved in Local Sulfonamide Therapy. G. Garnier.—p. 850.
Value of Electroencephalography for Diagnosis of Cerebral Tumors. J. E. Paillas, H. Gastaut, J. Tamalet and Verspick.—p. 851.
Treatment of Amebiasis: Evolution of Ideas and Recent Progress. L. Montel.—p. 853.

Dangers of Local Sulfonamide Therapy.—Garnier points out that in recent years there has been a tendency to use the sulfonamide compounds locally in the form of powders, ointments, lotions and drops. Applications in these forms are frequently followed by eczematoid reactions. This cutaneous sensitization sometimes involves a general sensitization, which becomes manifest when the patient takes a sulfonamide drug systemically, by mouth or parenterally. This lack of tolerance is to be regretted, since it contraindicates the use of sulfonamide drugs later for serious disorders in which these drugs are urgently needed. In some cases the cutaneous administration induces a sensitization toward groups of chemicals of related formulas. The author presents 4 case histories to illustrate these problems.

Wiener klinische Wochenschrift, Vienna

60:741-756 (Nov. 19) 1948. Partial Index

Therapeutic Problems in Abdominal Surgery. H. Finsterer.—p. 741.
*Pathogenesis of Periarteritis Nodosa. S. Djokic.—p. 746.
Simplified Preoperative Placing of Corneoscleral Sutures for Extraction of Cataract. K. Hruby.—p. 748.
Indication to Cesarean Section in Case of Obstacle to Delivery by Malformation of Fetus. K. Schöpf.—p. 749.

Pathogenesis of Periarteritis Nodosa.—Djokic reports 1 case of periarteritis nodosa with eosinophilia up to 55 per cent in a woman aged 55 who for years had suffered from bronchial asthma. The latter condition was apparently of bacterial-allergic origin, since recurrences of the attacks of asthma were observed after "colds." These attacks were associated with an increase in sedimentation rate and with moderate eosinophilia. Two years before her death the patient was given "asthma baths" for ten days. This treatment consisted of very hot baths followed by very cold baths. During the year preceding the patient's death diarrhea occurred and the eosinophilia became more severe. The course of the periarteritis nodosa was afebrile and was first associated with abdominal, and later on with neuritic and muscular manifestations. The concurrence of bronchial asthma, afebrile slow periarteritis nodosa and severe eosinophilia has been reported frequently in the literature, but the author's case advances a new point of view with regard to the pathogenesis of periarteritis nodosa. It is suggested that the severe heat-cold trauma which the patient received in the form of the "asthma baths" directed the allergic reaction toward the arteries.

Book Notices

Obstetric Analgesia and Anesthesia: Their Effects upon Labor and the Child. By Franklin F. Snyder, M.D., Associate Professor of Obstetrics and Associate Professor of Anatomy, Harvard Medical School, Boston, Mass. Cloth. Price, $6.50. Pp. 401, with 114 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London W.C. 2, 1949.

The author discusses the use of pain-relieving drugs in obstetrics with regard to the recent advances in this field. As Snyder emphasizes, progress in obstetric analgesia is linked with innovations in pharmacology and with new technics of anesthesia, but it depends primarily on the growth of knowledge of labor and of the effect on the child. Analysis from the point of view of the child reveals the preeminence of fetal respiratory injury as a cause of death associated with birth. Since all drugs commonly given for the relief of pain tend to alter the functioning of respiration, thus striking the fetus at the point of maximum susceptibility to injury during labor, measurement of the pharmacologic factor in labor is closely linked with the detection and measurement of fetal respiratory changes.

The book is divided into two sections. The first deals with "Respiratory Injuries of the Child" and the second takes up "The Treatment of Pain During Labor." In the first section the author discusses the pharmacologic factor in labor, the incidence of respiratory injury before birth, respiration before birth, intrauterine pneumonia, atelectasis, asphyxia and a laboratory method of assay of the effects of various anesthetic agents on the mother and the fetus. In the second section the following subjects are discussed: analgesic agents and labor pains, morphine, scopolamine, scopolamine-morphine analgesia, barbiturates, rectal administration of ether, magnesium sulfate and tribromoethanol, paraldehyde, chloroform, narcotic gases (nitrous oxide, ethylene, cyclopropane) and local anesthetics. At the end of most chapters is a summary of the important data and also a well selected list of references.

The book contains a vast amount of useful information. It is definitely authoritative, well written and abundantly illustrated with photographs, roentgenograms and charts. A few roentgenograms have been reproduced poorly. With this exception, however, the publishers have done their part most ably. The book should be studied by all obstetricians, anesthetists, pediatricians, physiologists and pharmacologists. Furthermore, if general practitioners were to be taught the lessons brought out in this book, there would be a decided drop in fetal and neonatal mortality.

Malignant Disease and Its Treatment by Radium. Volume I. By Sir Stanford Cade, K.B.E., C.B., F.R.C.S., Surgeon, Westminster Hospital, Mount Vernon Hospital and Radium Institute, London. With a foreword by Sir Ernest Rock Carling, F.R.C.P., F.R.C.S., F.F.R., Consulting Surgeon and Vice-President, Westminster Hospital. Second edition. Cloth. Price, $12.50. Pp. 383, with 161 illustrations. Williams & Wilkins Co., Mount Royal & Guilford Aves., Baltimore 2, 1948.

Sir Stanford Cade's original single volume, which has found an honored place on the shelf of daily reference volumes possessed by all radiologists, is now being thoroughly revised and rewritten, even though much of the original material was destroyed by enemy action during the last world war.

The new second edition will appear as four volumes. Volume 1, before us, carefully planned, well organized, well written, documented and illustrated, presents the fundamentals of radium therapy. The section on radium dosimetry presents a clear outline of the basic principles underlying the therapeutic application of roentgen rays and radium. The chapters on biologic effects of radiation on normal and malignant tissues leaves the reader with the feeling that the author has done his job well in setting forth the established facts in a concise and easily remembered form.

The bibliographies at the end of each chapter add much to the usefulness of the text. The first volume contains its own index, thoroughly cross indexed. Figures are noted as such, which makes for efficiency in finding any reference. The illustrations are excellent in quality and supplement the points made in the text; several are in color.

Traitement moderne des méningites purulentes aigues. Par René Martin, médecin-chef de l'Hôpital de l'Institut Pasteur, et Bernard Sureau, médecin-assistant à l'Hôpital de l'Institut Pasteur. Collection de l'Institut Pasteur. Paper. Price, 450 francs. Pp. 256, with 41 illustrations. Ernest Flammarion, 22 rue de Vaugirard, Paris, 6e, 1948.

This book is principally descriptive of present day methods usually employed in the therapy of meningitis. The authors review many of the reports published in America and elsewhere and cite their own experiences and opinions. The volume is divided into two parts. In the first, the opening chapter presents a history of the treatment of meningitis from early times until now. The remainder of part I is devoted chiefly to the commoner kinds of meningitis but includes also a number of rare forms.

Part II relates to the newer drugs, discussing their value, suitability, dosage, toxicity and other factors.

The authors do not place a high degree of confidence in penicillin for the treatment of meningococcic meningitis. However, they advise its use as an adjuvant for sulfonamide therapy, and when prescribed they believe that penicillin must be given intrathecally. A similar view is expressed regarding intraspinal therapy when streptomycin is used for influenzal meningitis.

Most of the conclusions presented are in full accord with those of the majority of investigators in the United States and other countries. The book is interesting, but it is an incomplete review because it does not discuss all modern methods of treatment.

There are numerous graphs and tables; also two pages of plates illustrating laboratory cultures. At the close of the volume is an extensive and valuable bibliography which includes many American authors.

Heredity in Essential Hypertension and Nephrosclerosis: A Genetic-Clinical Study of 200 Propositi Suffering from Nephrosclerosis . By Paul Søbye. Opera ex domo biologiae hereditariae humanae Universitatis Hafniensis, Volumen 16. Translated from the Danish by Elisabeth Aagesen. Denne Afhandling er af det lægevidenskabelige Fakultet antaget til offentlig at forsvares for den medicinske Doktorgrad, København. Paper. Pp. 225, with illustrations. Ejnar Munksgaard Forlag, Nørregade 6, København, K; Nyt Nordisk Forlag, Arnold Busck, Copenhagen, 1948.

The subject is of general interest to the specialist, general practitioner and medical student. The book is valuable because of an extensive review of the literature concerning not only the role of heredity in hypertension but also the incidence of hypertension in various age groups in the population. The author does not accept the conclusions of previous writers because of the small series of cases and inadequate controls. Unfortunately, although the book is short and contains numerous summaries, there is considerable ambiguity in the terminology used. This may in part be the result of the translation.

The author defines essential hypertension as a systolic pressure of 160 mm. or more and a diastolic pressure of 100 mm. or more, although he includes persons under 50 years with a systolic pressure of 160 alone. This reviewer believes that these criteria are too high, and the author admits that the low incidence of hypertension in his cases is lower than that usually reported because of his rigid requirements. Another reason for the author's low incidence of hypertension is that he recorded the lowest pressure during the examination. The wisdom of this procedure is questionable, since statistics collected by insurance companies suggest that the first or highest blood pressure is more significant. The definition of nephrosclerosis is not clear. The author uses the term to mean hypertension, as defined, plus proteinuria. He states that he makes no distinction between malignant and benign nephrosclerosis, and concedes that the differentiation from essential hypertension is often difficult. His terminology is confusing.

The author examined 753 patients and their families and received information from hospital records, general practitioners and death certificates in 1,270 others. The control series numbered 2,786. A hereditary predisposition was observed in 176 families and none in 10 families. The author found the incidence of essential and malignant hypertension and of death due to cerebral apoplexy higher in the families of patients with hypertension than in the general population. He explains this difference on the basis of heredity factors. He believes that hypertension and nephrosclerosis are manifestations of the same gene; i.e., they are different manifestations of one disease and not varying degrees of the same disease. It is his belief that exogenous factors produce one or the other. He found that inheritance is dominant but does not explain how the hereditary gene asserts itself in the causation and pathogenesis of hypertension. Furthermore, from a eugenic point of view, it is impossible to utilize the influence of hereditary factors in the causation of hypertension.

Although there was a slight preponderance of the pyknic habitus, the author did not find that hypertension was associated with a specific constitution. His figures also do not support the notion that hypertension is a disease of civilization. He considers the effect of marriage, geographical conditions and racial properties but comes to no definite conclusion. He found that obesity and alcoholism were much more common in hypertensive relatives than in the general population, whereas uric acid, arthritis and diabetes were only somewhat higher.

This book should serve as a stimulus to the enormous amount of work which must be done in this important field.

The Skin Diseases: A Manual for Practitioners and Students. By James Marshall, M.D., B.S., M.R.C.S., Director of Venereal Diseases Clinic, Royal Northern Hospital, London. Cloth. Price, $7.50. Pp. 363, with 222 illustrations. The Macmillan Company, 60 Fifth Ave., New York 11; Macmillan & Co., Ltd., 10 St. Martin's St., Leicester Sq., London, W.C. 2, 1948.

Designed, according to the author, as a companion to his manual "The Venereal Diseases" and as a book to appeal to the general practitioner, the text is brief, details and descriptions difficult to apply or to interpret by the occasional user have been omitted and concise essays are presented descriptive of the salient features of diagnosis and therapy of dermatoses most likely to be met. The author has sought "to provide a guide to procedure which will tempt some to try their hands in the treatment of skin diseases which are all too often considered only a waste of time in general practice." "Dermatology is as yet an art rather than a science . . . " "It is a good rule to use only the mildest and blandest remedies appropriate . . . " "Radiotherapy should be prescribed and administered only by those expert in the subject . . . "

Illustrations are on the whole good and typical. Little space is expended on bibliographic references.

When an author confines himself to 363 pages of modest size for the presentation of dermatology and syphilology, it is harder to write as good a book than to find faults. But when he states that "Syphilis is very fully considered," one might expect more about the neurologic aspects than "Specific changes in the cerebrospinal fluid are found in some cases of late syphilis . . . Lumbar puncture should always be performed in any case of late cutaneous syphilis in order that treatment may be properly planned." There is no further mention of the cerebrospinal fluid, its possible abnormalities or the alterations of planned treatment that such abnormalities may suggest. Among points of disagreement between opinions of author and reviewer may be noted his statement regarding verruca vulgaris: "X-ray treatment . . . is sometimes effective for crops of warts which would be time-consuming in individual treatment."

The book is a handy, quick reference for a hurried practitioner to whom dermatology is an unavoidable nuisance, and students could be taught from it conveniently, but it is not likely to be popular in the United States.

Histopathology of the Peripheral and Central Nervous Systems. By George B. Hassin, M.D. Third edition. Fabrikoid. Price, $8.50. Pp. 612, with 325 illustrations. The Author, 912 S. Wood St., Chicago, 1948.

After many years of work in the field of histopathology of the nervous system, the author concluded that the usual clinical manuals on neuropsychiatry treated this subject inadequately, and he wrote a text devoted to the description of the histologic changes in the various nervous diseases, in their relation to clinical manifestations. Diseases of the peripheral nerves, spinal cord and brain are described individually from a histopathologic angle only. In the present edition, among the many chapters that have been rewritten are those on the most important groups of encephalitis, torulosis, Landry's paralysis and amyotonia congenita. New chapters have been added on catabolic diseases, trauma of the cauda equina and the histopathology of spina bifida.

Diagrams of the Unconscious: Handwriting and Personality in Measurement, Experiment, and Analysis. By Werner Wolff, Ph.D., Professor of Psychology, Bard College, Annandale-on-Hudson, New York. Cloth. Price, $8. Pp. 423, with 323 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1948.

Graphology is rapidly becoming a significant field. The interrelationship between graphic and biographic data enables the worker to approach the deeper layers of the personality. Intuitive graphology has been replaced by scientific approaches. The author is one of the leaders in this new field and has compiled a fascinating document portraying his work through the analysis of numerous examples of handwriting, diagrams and drawings. The book is to be highly recommended for all dynamic psychologists and psychiatrists. It is hoped that in the next edition the examples of handwriting will be taken from American subjects so that they *may* be more easily understandable by American psychiatrists.

Rhumatisme articulaire aigu (maladie de Bouillaud). Par R. Lutembacher. Paper. Price, 1000 francs. Pp. 438, with 142 illustrations. Masson & Cie, 120 Boulevard Saint-Germain, Paris, 6°, 1947.

This comprehensive monograph on rheumatic fever and its complications covers every phase of the disease. Special emphasis is placed on morbid anatomy, especially that of the myocardium and endocardium. There are many excellent photographs of gross and microscopic lesions. There is a well illustrated chapter on rheumatic pneumonitis, and considerable attention is devoted to the complications which may occur in the liver and the pancreas. The author devotes comparatively little space to the hemolytic streptococcus and the work in this country on the biologic and immunologic phenomena which have been noted in connection with streptococcic infection in rheumatic fever. One would expect the descendants of Pasteur to be more bacteriologically minded! Treatment with salicylates, antipyrine, aminopyrine and other antirheumatic agents is discussed in detail. This treatise suffers for lack of a bibliography.

British Hospitals. By A. G. L. Ives. Boards. Price, 5 s. Pp. 50, with 30 illustrations. Collins, 14 St. James's Place, London, S.W. 1, 1948.

The author in this brief but well written volume presents a historical sketch of the hospital movement in Great Britain which has now culminated in state ownership and control under the National Health Service Act. The story is told in three main phases covering the foundation of hospitals by religious orders in the Middle Ages, the development of the voluntary hospital system in the eighteenth century and the establishment of public hospital service under legislation dating back to Elizabethan times. While these streams have now merged into a new hospital system under the responsibility of the state, the author points out that the quality of service will, in the final analysis, depend on factors which lie outside the scope of legislation. These are the human factors which relate to the skill and devotion of hospital personnel.

List of Species Maintained in the National Collection of Type Cultures. Medical Research Council, Memorandum No. 21. Paper. Price, 9d. Pp. 17. His Majesty's Stationery Office, York House, Kingsway, London, W. C. 2, 1948.

This pamphlet contains a list of species of micro-organisms, corrected to the beginning of June 1948, which are carried in the British National Collection. The nomenclature is that used in the third edition of Topley and Wilson's "Principles of Bacteriology and Immunity." This list should interest bacteriologists in university, research, hospital and other laboratories who may wish to obtain species of micro-organisms from the British collection.

Studies in Analytical Psychology. By Gerhard Adler, Ph.D., Senior Psychotherapist to the Clinic of the Society of Analytical Psychology, London. Cloth. Price, $4. Pp. 250, with illustrations. W. W. Norton & Co., Inc., 101 5th Ave., New York 3, 1948.

The book contains a collection of lectures given by the author in London between 1936 and 1945. They contain the essence of jungian analytical psychology, which profoundly differs from freudian psychoanalysis. The book is well written for the purpose of the professional reader who wishes to get at the essence of jungian psychology and to obtain a sharp perspective in contrasts.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

TELEVISION AND EYE STRAIN

To the Editor:—Does television produce eye strain? Is a small screen superior to a large screen? Is a distance of 10 feet better than a shorter one? Should the screen be viewed perpendicularly and not at any angle? Is there a time limit for television viewing? Are daylight screens better than the ordinary ones? Paul C. Craig, M.D., Reading, Pa.

Answer.—1. Television in itself does not produce eye strain; however, since it requires the utilization of all the important components of the visual act, such as convergence, accommodation and fusion, patients often complain of fatigue after relatively short periods. This is particularly true if there are any defects in any of the mentioned mechanisms.

2. In general, a large screen is considered to be better than a small one, because it allows clearer vision at a greater distance and gives a larger visual angle.

3. A distance of 10 feet or more would, in general, be better than a shorter distance, provided the size of screen and room would permit.

4. The nearer perpendicular, the better. Too much of an angle produces distortion and makes fusion difficult.

5. There is not a definite time limit; however, some discretion should be used, and it should not be persisted in beyond the point of fatigue.

6. Daylight screens, in general, are considered to be better because they are compatible with more light in the room, thus reducing the contrast between screen and surrounding objects.

SIMMONDS' DISEASE

To the Editor:—What is the most recent therapy for Simmonds' disease? Thomas B. Carey, M.D., Douglas, Ariz.

Answer.—The treatment of Simmonds' disease (hypopituitary cachexia) resolves itself into the treatment of thyroid hypofunction, plus the associated hypogonadism and hypoadrenocorticism. The dose of thyroid varies between 30 and 60 mg. daily. Adrenocortical lack is combated by the administration of extra salt by mouth, 4 to 8 Gm. daily, and, in part, by the use of some steroid hormone. Testosterone propionate may be given to either sex in dosage of 10 to 25 mg. intramuscularly twice a week. During periods of physical stress, or during infections, the dose may be raised to 25 mg. three or four times a week. In females, estrogens in dosage of 1 mg. intramuscularly twice a week may replace testosterone. In young persons of either sex, chorionic gonadotropin may be used in dosage of 500 to 750 units intramuscularly twice a week. This stimulates the gonads to produce their respective hormones.

Recently adrenocorticotrophic hormone (ATCH) has been used experimentally with promising results.

In periods of stress, adrenocortical failure crisis may supervene. It is treated in the usual way with isotonic sodium chloride and dextrose intravenously, and desoxycorticosterone acetate and adrenocortical extract intramuscularly.

ERUPTION OF TEETH

To the Editor:—A 10 year old boy was referred for nutritional study because of a delay in the appearance of certain permanent teeth. Roentgen examination revealed normal dental development for a boy of 8 years. The left maxillary lateral incisor was absent and the right incisor was rudimentary. All deciduous teeth were in place and firm except the maxillary central incisors and mandibular incisors, which had been replaced by permanent teeth. Caries was absent. Roentgen examination of the wrist showed a bone age of a boy of 8 years. Past history reveals a severe attack of amebic dysentery with hepatitis about six years ago and malaria four years ago. Should therapeutic measures be instituted to hasten the root absorption of these deciduous teeth? M.D., California.

Answer.—You should not be alarmed regarding the dental eruption status of this patient. The eruption of his teeth is not delayed, since the cuspids, bicuspids and second molars erupt at about 12 years of age. The congenital absence or rudimentary development of the upper lateral incisors is not uncommon.

ABORTION WITH ABSENT FETUS

To the Editor:—A young woman 20 years of age has been married about a year. She had one pregnancy which resulted in a miscarriage at the third month. She became pregnant again, was about two months pregnant and miscarried again. The product of conception—i. e., the placenta, clot formation and enclosed amniotic sac—were intact, but no fetus could be discovered in a perfectly intact amniotic sac. The husband was in the Navy during World War II and was exposed to atomic radiation at the Bikini explosion, and was on "hot" naval vessels. Is there any relationship between the miscarriages with absent or atrophic fetuses and residual or potential atomic effect on the male sperm cells? I have seen many miscarriages in my medical career of thirty years, but never a true amniotic sac, placenta, and then an absent fetus on opening a normal amniotic sac. Is there any pertinent information in the literature? These young folks are anxious to have children and much disappointed at the outcome. S. Lloyd Johnson, M.D., Catonsville, Md.

Answer.—It is not rare to find an early conceptus in which the amniotic sac is intact but in which the embryo is absent. The cause is unknown. It is hardly likely that exposure of the husband to atomic radiation was responsible for this blighted ovum. Both husband and wife should have a thorough physical examination which should include several laboratory tests, especially determinations of basal metabolic rates and a Wassermann or Kahn test. A search should be made for focal infections. Thyroid extract helps in some cases even when the basal metabolic rate is normal. This patient should be treated as a case of habitual abortion even though she is not one. The treatment may be found in any standard textbook of obstetrics.

POSITIVE WASSERMANN REACTION

To the Editor:—What diseases might be indicated by a 4 plus Wassermann reaction? How does one tell these diseases from asymptomatic latent syphilis? L. Edward Giovine, M.D., Woodside, N. Y.

Answer.—Besides syphilis, positive serologic reactions of the blood may occur in such conditions as infectious mononucleosis, malaria, yaws, Hansen's disease (leprosy), relapsing fever, trypanosomiasis, after vaccination against smallpox, when the albumin-globulin ratio is reversed as in acute lupus erythematosus, in almost any febrile disease, particularly infections of the upper respiratory tract, in lymphogranuloma venereum, hemolytic jaundice and sometimes even when there is no demonstrable disease. Usually quantitative blood tests are apt to give biologic "false" positive reactions. To rule out syphilis there should be a painstaking detailed history to determine whether there had been a "sore" or rash, transitory alopecia, sore throat, articular pains, previous blood tests or previous antisyphilitic treatment. There should also be a thorough physical examination including a neurologic and cardiovascular examination and investigation of the cerebrospinal fluid. It is well, also, to examine other members of the family and other "contacts" for evidence of syphilis.

BENIGN TUMORS OF THE DUODENUM

To the Editor:—A 57 year old man complained of epigastric distress. Roentgenologic examination disclosed a number of polyps in the duodenum. Since establishment of the diagnosis, he has gotten along well on a soft diet, but search of the literature that we have available discloses little information regarding this condition. What are the causation, prognosis and treatment? John H. Kitchel, M.D., Grand Haven, Mich.

Answer.—Tumors of the duodenum, exclusive of carcinoma, are of such relatively infrequent occurrence as to justify reporting the individual cases as they occur. However, the literature on the subject has already assumed considerable proportions. The term "polyp" is used to signify any epithelium-covered projection into the lumen of a body cavity lined with mucosa. Such growths are, of course, neoplastic as a rule, and their causation is that of neoplasms in general. A polypoid lesion in this location usually connotes a benign adenomatous or papillomatous tumor or other benign type of neoplasm. The first mentioned is the commonest benign tumor of the small intestine. In earlier times such tumors were found only at necropsy or during operation. In more recent years they have been increasingly identified on roentgenologic examination. Individual cases of polypoid or pedunculated tumors have been reported by Sworn and Menton, Roelsen, Waters, Finney, Schorrs, Fowler and Kellogg. Tumors of the duodenum have been associated with tumors in other parts of the intestinal tract in 10 of 36 recorded cases. Duodenal tumors, even those of considerable size, may be asymptomatic, so that a systematic search should be made for coexisting lesions elsewhere in the upper part of the digestive or biliary tracts. However, such tumors may give rise to pain and digestive disturbances, gross and occult bleeding, obstruction and intussusception.

In the case in question the polypoid lesions are probably of benign adenomatous or papillomatous nature. Adenomatous tumors usually arise from structures of Brunner's glands. As previously implied, an investigation should be made for a similar lesion elsewhere in the gastrointestinal tract. While a carcinomatous nature of such polyps, of course, cannot be definitely excluded, it seems unlikely under the circumstances. The prognosis appears to be favorable in the continued absence of other complicating factors. Conservative treatment might be persisted in if the response to such treatment continues to be favorable. The patient should be reexamined from time to time

FACIAL TATTOO

To the Editor:—Is tattooing practical for covering a thin, well healed, slightly pigmented scar on the face of a young woman? The pigmented area resembles a thin pencil or ink line about 1½ inches (3.8 cm.) in length. Cicatrization is not perceptible. Cosmetic preparations such as Covermark® do not cover it. M.D., Pennsylvania.

ANSWER.—Usually a slightly pigmented linear area is not treated because they can be concealed successfully with cosmetic preparations such as covermark® and sheridan cream®. If, for psychic reasons, it becomes absolutely necessary for the pigmented area to be removed, plastic procedure would be the method of choice. Tattooing can be employed, provided it is done by a skilled operator, but the cosmetic result would probably be better if plastic surgery were performed.

VINCENT'S INFECTION

To the Editor:—A local dentist has a case which clinically and bacteriologically has the appearance of Vincent's infection. It clears up and then recurs. This has been going on for a year and a half so that both the patient and the dentist are discouraged. What is the best present treatment for this condition? Brae Rafferty, M.D., Willimantic, Conn.

ANSWER.—The failure of this infection to clear up may possibly be due to several factors: Either the teeth have not been adequately scaled or the patient may still be using tobacco. It is extremely important that all smoking be prohibited. Aside from these factors the therapy consists of the application of silver nitrate solution following the scaling and injections alternately of penicillin and arsphenamine. It is questionable whether perborate or peroxide mouth washes have much value.

PACKED CELL VOLUME

To the Editor:—Is 1,200 revolutions per minute in a small centrifuge sufficient to obtain accurate cell volume determinations, using a Wintrobe tube? How long must tube stand to obtain packed cell volume determinations without using a centrifuge? M.D., North Carolina.

ANSWER.—In carrying out determinations of packed cells volume in the hematocrit, it is necessary that the packing of the red cells be complete. This cannot be done at 1,200 revolutions per minute and never occurs in a tube simply standing in the vertical position. The centrifugal force depends on the radius as well as on the revolutions per minute. With the usual clinical centrifuges available, packing cannot be obtained with less than 3,000 revolutions per minute.

CARE OF CIRCULAR PLASTER SPLINTS

To the Editor:—In the fifth edition of "Primer on Fractures," published by the American Medical Association, it is recommended that circular plaster of paris splints always be split. I have rarely seen casts split unless there was evidence of circulatory obstruction. Should the cast be split down one side only, or down both sides? M.D., Illinois.

ANSWER.—The American Medical Association "Primer" advises splitting circular plaster of paris splints in an effort to protect the average practitioner against unforseen difficulties with circulation in a limb, especially instances of pressure necrosis or Volkmann's ischemic contraction in either forearm or leg. This ruling is not arbitrary and is dependent on several factors; namely, the type of fracture and its possible swelling reaction with pressure on blood and lymph vessels, the amount of padding placed beneath the splint, the intelligence of the patient, the pendent or unsupported position of the part which might enhance edema and swelling, the age of the patient and the vigor of his circulation and, finally, the quality and frequency of the follow-up care given by the attending physician.

If there is fear of swelling as after a severe contusion about the fracture site, or a great comminution of the bone which must lead to much hemorrhage about it, the splint should be split down its long axis on one side, and then rebandaged lightly to prevent undue spreading and possible displacement of fragments.

If the physician is seeing the patient in the hospital, or at his home or office within twelve hours after the splint is applied, he may omit the splitting, but his inspection within that period becomes imperative and must be followed up at suitable intervals (at first daily perhaps) until he can assure himself that there no longer exists danger of interference with circulation in the limb, either from swelling within it or pressure from without by the splint. This period may last a week or slightly longer with attention to the factors mentioned.

If the patient is seen as an outpatient at the hospital or as an office patient, the parents or some one responsible should be shown how to split the cast in the night if pain, numbness, cold or cyanotic fingers or toes develop. The hospital record should show a written order to this effect for the action of nurses or interns. Absolutely unpadded splints may be dangerous, as they allow no room for expansion between the soft tissues of the limb and the hard encasement. Cutting or splitting an unpadded splint is difficult. Men using them claim that they first obtain perfect reductions and have no fear of swelling. Even a perfectly reduced fracture, however, may lead to continued hemorrhage into the tissues about the fracture site or to increasing swelling in the first few days after fracture.

MAMMALIAN BLOOD PRESSURE

To the Editor:—What are the average blood pressure readings on the fore and hind legs of mammals? Have venous pressure studies been made? Is there a difference in pressure in the fore and hind legs of animals, such as in the arms and legs of human beings? Is the difference in pressure in human beings due to the dynamics of the upright position? M.D., New York.

ANSWER.—In general the diastolic blood pressures of mammals have been found to average about 800 plus or minus 15 mm. of mercury. Systolic values depend on the diastolic plus a factor depending on the time of ventricular ejection, the stroke output and the elasticity of the arterial tree. During the ventricular ejection a pressure wave passes out over the arterial tree, and this may result in some variations in the contour of the pressure pulse recorded at various points, particularly with an increase of about 20 mm. of mercury at the femoral artery. This is due primarily to resonance of the fundamental systolic pressure pulse with another wave reflected from the immediate branches of the femoral artery in the thigh. For practical purposes, and particularly with nonoptical direct recording instruments such as the mercury column or the sphygmomanometer, no notable difference is usually recorded in simultaneous readings in the fore or hind legs of the common laboratory animals including the dog, cat, rat and guinea pig, or in man, provided that these parts are in the same horizontal plane. Gravitational factors may introduce pressure changes which may be accounted for by hydrostatics. In sphygmomanometric readings in man, the pressure in the thigh may sometimes appear to be higher than that recorded in the arm. This is due in large part to the resistance of the fleshy parts of the thigh to transfer of the pressure from the sphygmomanometer cuff to the femoral artery.

Venous pressures are also similar at various points on the great veins if these are on the same horizontal plane. Differences which may be seen can usually be accounted for by hydrostatic factors or by the method of introducing the needle so that the force of head-on flow is added to the lateral pressure value.

TREATMENT OF SPIDER BITES

To the Editor:—In Queries and Minor Notes, The Journal, Oct. 30, 1948, page 720, a question appears regarding scorpion and spider bites. In my practice in the South I see from 3 to 5 cases of black widow spider bites nearly every year. As a result of ten years' experience in their treatment I have settled on the following regimen:

As soon as a diagnosis of spider bite is made or if the patient merely complains of a bite which stung a little and then experiences severe cramping in the abdomen or limb muscles I give 10 to 20 cc. of calcium gluconate solution intravenously. This is given rapidly enough to produce a slight sensation of heat in the tongue and palms of the hands and soles of the feet. As soon as this sensation is felt, the patient will tell you that the cramping has largely ceased. The calcium would give the average adult quicker and more complete relief from pain than ½ grain (30 mg.) of morphine. As soon as the calcium is administered, the patient is given a skin test for horse serum and 1 to 2 units of Lactrodectus mactans antivenin is given intramuscularly, depending on the severity of the symptoms and the size of the patient. This is now manufactured by Wyeth. This material is dried and will keep for at least five years, so a physician can keep at least two packages in the office at all times.

The patient is asked to remain either in the office or in town for five to six hours, as 10 to 40 cc. more calcium may be necessary to control the pain before the antivenin neutralizes the effects of the bite.

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EVALUATION OF TREATMENT OF HYPERTENSION

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Essential hypertension, similar to all disease entities the causes of which are obscure, has a tendency to progress as time and age advance. It requires careful and frequent observation, and treatment should be instituted before severer stages of the disease develop. Abnormal elevation of the blood pressure may persist for years in a minimal degree without producing symptoms or disability, and severer elevation of blood pressure may respond to medical management and remain under control without proving disabling or showing evidence of progression. The problem confronting the medical profession today is the control of progressive hypertension and the prevention of irreparable damage to the various structures of the body.

Not much is known about the mechanism of elevation of the blood pressure in essential hypertension. Three factors are responsible for maintaining normal blood pressure, and derangement of any one of these may cause a change in the blood pressure. The cardiac output, the volume or viscosity of the blood and the resistance to the flow of the blood through the peripheral arterial system determine the blood pressure. Cardiac output or viscosity of the blood is not altered in essential hypertension, but the caliber of the peripheral vessels is decreased. The decrease in diameter of the peripheral vessels is attributable to (1) a condition inherent in the arterioles and (2) an abnormal reaction of the arterioles to vasomotor stimuli.

There is a large hereditary factor in essential hypertension. Ayman [1] found that if both parents had absolutely normal blood pressure the incidence of elevated blood pressure among the children was only 3 per cent. In families in which one parent had hypertension the incidence rose to 28 per cent, and in families in which both parents had arterial hypertension the incidence was 45 per cent. Hines and Brown [2] have shown that a family history of hypertensive cardiovascular disease is five times more frequent among persons who have hypertension or who are hyperreactive to a standard stimulus (immersion of the hand in ice water) than it is among persons who react normally to the test. Probably a sensitive and hyperreacting sympathetic nervous system responds abnormally and produces unusual vasoconstriction as a result of various emotional reactions, and this may lead to the so-called neurogenic hypertension.

Wagener and Keith [3] have classified essential hypertension into four groups as follows: (1) slight to moderate increase in the blood pressure, becoming normal as a result of rest, and slight sclerosis of the retinal arteries, usually without symptoms; (2) moderate to severe hypertension, moderate sclerosis of the retinal arteries, and occasionally venous thrombosis; clinical symptoms are present or absent; (3) moderately severe hypertension and angiospastic retinitis, almost always associated with clinical symptoms of hypertension, and (4) severe hypertension, angiospastic retinitis, edema of the optic disks and, always, clinical manifestations of hypertension.

The hypertension of any patient may progress from group to group, and the mortality rate among patients who have hypertension groups 1 and 2 is 30 and 42 per cent respectively in four years. The mortality rate among patients who have hypertension classified as group 3 is 78 per cent in four years, and in group 4, 98 per cent.[4] This high mortality rate should be noted carefully by those who are inclined to consider that hypertension is not ordinarily a serious disease. Malignant hypertension and essential hypertension are not separate conditions, for malignant hypertension is a type of essential hypertension. The term "malignant" is used loosely to designate severe forms of hypertension. The seriousness of hypertension ordinarily parallels the progress from group to group, and any treatment, especially the surgical treatment of hypertension, must show a control of the progress from one group to another or a lessening in the severity of the hypertension and the symptoms.

The treatment of essential hypertension should not be delayed until the blood pressure tends to become decidedly elevated and fixed and symptoms are incapacitating, but should be instituted in the early stages of the disease. The disease process is so distributed throughout the body that irreparable damage to the heart, kidneys and vessels as well as to other structures usually occurs before any attempt to control the progress is made. Little therapeutic interest has been centered on early or potential hypertension in spite of definite evidence that heredity plays a part in the causation, that hyperreactive children have been found and that a

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From the Section on Neurosurgery, Mayo Clinic, Rochester, Minn.

Read before the Section on Surgery, General and Abdominal, at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

[1] Ayman, D.: Heredity in Arteriolar (Essential) Hypertension: A Clinical Study of the Blood Pressures of 1,524 Members of 277 Families, Arch. Int. Med. **53**: 792-802 (May) 1934.

[2] Hines, E. A., Jr., and Brown, G. E.: The Hereditary Factor in the Reaction of Blood Pressure to a Standard Stimulus (Cold): Preliminary Report. Proc. Staff Meet., Mayo Clin. **10**: 371-373 (June 12) 1935.

[3] Wagener, H. P., and Keith, N. M.: Diffuse Arteriolar Disease with Hypertension and the Associated Retinal Lesions, Medicine **18**: 317-430 (Sept.) 1939.

[4] Keith, N. M.; Wagener, H. P., and Barker, N. W.: The Problem of Prognosis in Essential Hypertension: A Follow-Up Study in Two Hundred and Nineteen Cases, Tr. A. Am. Physicians **53**: 81-86, 1938.

recent report from one of the leading medical schools revealed that 20 per cent of the students were found to have evidences of arteriosclerosis. Treatment may be classified as expectant, physiologic and palliative. Expectant treatment should consist of early detection of the disease and the outlining of a program for hyperreactors or patients with early hypertension. These potential hypertensive persons should be warned against excessive smoking, and an attempt should be made to guide their activities and thinking with regard to their health. This has been done in similar diseases.

The physiologic type of therapy is already in effect. It consists first of medical measures such as the use of rice and low-sodium diets and the administration of such drugs as thiocyanates, the barbiturates, rutin, Veratrum viride and other measures to lower the blood pressure, guard against cerebrovascular accidents and relieve the incapacitating symptoms.

The medical treatment of slight essential hypertension is usually satisfactory, and some patients who have moderate hypertension of group 1 or 2 respond rather well for a time. A nontoxic, adequate and prolonged vasodilator would solve the problem of treatment in many cases. The nitrites, drugs of the acetylcholine series, histamine and tetra-ethyl-ammonium chloride or bromide have in common a vasodilating action, but, owing to their temporary physiologic effect, their therapeutic value has not been lasting or permanent. Potassium thiocyanate has proved effective, both before and especially after operation, but the dosage must be carefully regulated. The sedatives, particularly the barbiturates, are the most valuable drugs. The amount of sedative drug which should be given three or four times a day should be great enough to abolish nervousness and restlessness and small enough to avoid drowsiness and excessively slowed mental reactions. Many patients suffering from essential hypertension, however, do not respond adequately to medical treatment, and surgical treatment should be considered.

While it is true that slight hypertension may persist for many years without evidence of progression, there are many cases in which surgical treatment is not considered until after the disease has progressed to severe stages with irreversible changes in the vessels of the heart, kidneys, brain and other organs. As with the treatment of cancer of twenty years ago, so under the present setup neurosurgeons are attempting to alleviate symptoms produced by organic changes far beyond the scope of physiologic surgery. To neurosurgeons the answer is early surgical attack, and results confirm this impression.

The surgical treatment of essential hypertension has been accepted by the profession as a therapeutic measure to be employed in cases in which the disease proves resistant to medical and dietary regimens. The results following surgical treatment have not been uniform with regard to lowering of blood pressure or the relief of symptoms. The many factors contributing to the elevation of the blood pressure, such as heredity, environment and emotional and physical stability, must play an important role in the response to sympathetic denervation of a portion of the body.

A search is being made for a test which will differentiate between the patients who will and those who will not respond to surgical measures. So far no such test or tests have been found. However, observation of the patient during rest in bed and the use of barbiturates, sodium nitrite and tetra-ethyl-ammonium chloride or bromide have aided in indicating those patients most unlikely to respond. Actually the physiologic response of the entire organism to sympathetic denervation must depend on the capacity of the vessels and tissues of the body to alter their functions. If they are not capable, because of irreversible changes in their cells, of doing so, then beneficial therapeutic effects cannot be expected.

On the basis of a review of a large series of cases in which the subdiaphragmatic operation had been done over a period of years and a series in which the thoracolumbar procedure had been followed, it is the impression at the clinic that the more extensive operation has been followed by more lasting and more nearly complete relief of symptoms and lowering of blood pressure. Smithwick[5] performed both the supradiaphragmatic and infradiaphragmatic operations, and later he combined the procedures; he found that the combination was more efficacious. In some of the cases in which the infradiaphragmatic operation had been done and in which the symptoms and elevation of blood pressure recurred after a number of years, the thoracic portion of the sympathetic trunk and splanchnic nerves was removed in the Mayo Clinic and elsewhere with decided improvement.

The surgical treatment of essential hypertension is physiologic in the early stages of the disease and palliative in the later or more advanced stages. Just how early in the development of hypertension surgical treatment should be advised is a question which is being seriously considered in the various medical centers interested in the problem. Also, the question of how extensive the early operations should be is being considered, as the possibility of more conservative operations in the early stages of the disease and more radical procedures in the later stages has received more than the usual amount of thought and discussion.

Various types of sympathectomy have been carried out and studied extensively both preoperatively and postoperatively. In contrast to many operations performed on human beings which have as their principle the removal of pathologic tissue, the operative treatment of hypertension is based on a physiologic response of the patient. As Grimson[6] has stated, the lowering of the blood pressure following sympathectomy has been directly proportional to the extent of the sympathectomy and inversely proportional to the severity of the disease.

Psychosomatic medicine has been discussed in connection with the origin and treatment of many diseases, and Weiss[7] has stated that the organic tradition in medicine has been responsible for a narrow view of the cause and treatment of essential hypertension. He has expressed the belief that there are two psychic tendencies that seem to stand in close relationship to hypertension, namely, anxiety and rage. The psychosomatic concept emphasizes the necessity of total evaluation based on combined physical and psychologic study of the patient. The patient must be free of the phobia of his high blood pressure and he must be allowed to express his aggression along more nearly normal channels. Weiss has said that lowering of the blood pressure does not constitute the sole approach to the problem of hypertension, nor can hypertension be eradicated by any psychotherapeutic process, but almost every patient with essential hypertension can be benefited by psychotherapy. Physicians have been too much concerned with physical measurements of hypertension and have been too little concerned with emotional life, and the study of both may hold the key to satisfactory management of the hypertensive patient.

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[5] Smithwick, R. H.: A Technique for Splanchnic Resection for Hypertension: Preliminary Report, Surgery 7: 1-8 (Jan.) 1940.

[6] Grimson, K. S.: The Surgical Treatment of Hypertension: Collective Review, Internat. Abstr. Surg. 75: 421-434 (Nov.) 1942.

[7] Weiss, E.: Psychosomatic Aspects of Arterial Hypertension, Am. Pract. 2: 19-24 (Sept.) 1947.

SURGICAL TREATMENT

The postoperative results have revealed that patients with high fixed hypertension associated with diffuse arterial sclerosis are not materially benefited by operation. For that reason certain criteria have been sought by which to prognosticate the postoperative results. Observation at rest, sedation with the barbiturates and response to anesthesia have all been tried with varying results. Comparison of the various groups of hypertension, both before and after operation, have shown that patients suffering from severe hypertension, in the later stages of the disease, may show decided clinical improvement after operation, but such improvement is not permanent.

The multiplicity of operations [8] which have been tried and the controversy which has been aroused with regard to the application and to the results is testimony itself that one procedure has not proved infallible. All operations for the relief of essential or primary hypertension have a basic physiologic objective consisting of the denervation of the vascular tree of the abdominal viscera and the lower extremities. All operative procedures take cognizance of the fact that failure results if cardiac or renal functions are both significantly impaired. Irreversible changes in the vascular, muscular and nervous systems, as well as in the heart, kidneys and other vital organs, indicate a condition not amenable to this physiologic type of operation.

Thus far, in a review of the results of operation in the treatment of hypertension, it is evident that two types of responses are significant. In one group of cases there has been a definite control of the progression of the disease, as evidenced by a lowering of both the systolic and diastolic pressures for varying periods of time. In another group there has been a decided relief of the distressing and disabling symptoms without a startling lowering of the blood pressure. This is true in spite of a definite objective of lowering the blood pressure primarily and of relieving the symptoms secondarily.

In the acquisition of experience with the different operative procedures in conjunction with careful preoperative and postoperative studies and a longer period of observation, much has been learned. In view of the fact that all surgical procedures have been followed by some lowering of blood pressure and alleviation of symptoms and are attended with a relatively low rate of mortality, with the exception of the rhizotomies, which have been abandoned,[8a, b] it is possible that they can be used individually in the treatment of various phases or stages of hypertension. This has proved true in many controversial operative surgical procedures in general surgery and in the other surgical specialties.

TYPES OF OPERATION FOR HYPERTENSION

I. Rhizotomy: intraspinal division of anterior or motor roots of sixth thoracic to second lumbar nerve
II. Rhizotomy: intraspinal division of anterior or motor roots of ninth thoracic to second lumbar nerve
III. Sympathectomy and splanchnicectomy
    (*a*) Subdiaphragmatic, first and second lumbar nerves
    (*b*) Supradiaphragmatic, tenth, eleventh and twelfth thoracic nerves
IV. Sympathectomy and splanchnicectomy
    (*a*) Transdiaphragmatic, ninth thoracic to second lumbar nerve
    (*b*) Transdiaphragmatic, third thoracic to second lumbar nerve
    (*c*) Combined subdiaphragmatic and supradiaphragmatic
        1. First thoracic to fourth and fifth lumbar nerves
        2. Seventh thoracic to second lumbar nerve

So much has been written concerning the different technics that it seems unnecessary to refer to them in detail (outline). Suffice it to say that rhizotomy extending from the sixth thoracic nerve to the second lumbar nerve was carried out with the idea of interrupting the sympathetic impulses to the splanchnic vessels and the vessels of the lower extremities.[8a] The operation proved to be of such magnitude and carried with it so much risk, not only of physical disability but of death, that it was abandoned as being surgically hazardous. However, before this procedure was abandoned, it was modified to involve the ninth thoracic nerve to the second lumbar nerve.[8b] Some gratifying results were obtained with the latter without the extensive operation and risk involved in the former. This demonstrated that in some cases a modified procedure was effective.

The rhizotomies, which interrupted the sympathetic impulses to the splanchic region, were followed by a lowering of the blood pressure and a relief of symptoms. This aroused interest in approaching the problem from the extraspinal route. The intrathoracic supradiaphragmatic resection of the tenth, eleventh and twelfth thoracic sympathetic ganglions and the intervening trunk, along with a corresponding section of splanchnic nerves, was carried out, and several large series of patients have been followed for a period of years.[8c] The results as reported are impressive, both as regards the lowering of the pressure and the alleviation of symptoms.

The subdiaphragmatic operation, consisting of the removal of the splanchnic nerves and the first and second lumbar sympathetic ganglions along with the intervening trunk, has been carried out in many series, the results of which show a definite advance in the surgical treatment of hypertension.[8d, e] Preoperative and postoperative studies over a period of years prove without a doubt that in some cases there has been a definite and lasting physiologic response to this type of denervation.

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[8] (*a*) Adson, A. W., and Brown, G. E.: Malignant Hypertension: Report of Case Treated by Bilateral Section of Anterior Spinal Nerve Roots from the Sixth Thoracic to the Second Lumbar, Inclusive, J. A. M. A. **102:** 1115-1118 (April 7) 1934. (*b*) Brown, G. E.; Craig, W. M., and Adson, A. W.: The Treatment of Severe Essential Hypertension: Effects of Surgical Procedures Applied to the Sympathetic Nervous System, Minnesota Med. **18:** 134-138 (March) 1935. (*c*) Peet, M. M.: Splanchnic Section for Hypertension: A Preliminary Report, Univ. Hosp. Bull., Ann Arbor **1:** 17-18 (June) 1935. (*d*) Adson, A. W.: Essential Hypertension: A Report of the Results Obtained by Bilateral Ventral Rhizotomy (Sixth Thoracic to Second Lumbar Roots) and Bilateral Resection of Splanchnic Nerves, J. Nerv. & Ment. Dis. **82:** 190-193 (Aug.) 1935. (*e*) Adson, A. W.; Craig, W. M., and Brown, G. E.: Surgery in Its Relation to Hypertension, Surg., Gynec. & Obst. **62:** 314-331 (Feb.) 1936. (*f*) Hinton, J. W., and Lord, J. W., Jr.: Operative Technique of Thorocolumbar Sympathectomy, Surg., Gynec. & Obst. **83:** 643-646 (Nov.) 1946. (*g*) Poppen, J. L.: Technic for Supradiaphragmatic and Infradiaphragmatic Sympathectomy for Hypertension, Lahey Clin. Bull. **3:** 151-158 (July) 1943; correction, ibid. **3:** 187 (Oct.) 1943. (*h*) Grimson, K. S.: Total Thoracic and Partial to Total Lumbar Sympathectomy and Celiac Ganglionectomy in the Treatment of Hypertension, Ann. Surg. **114:** 753-767 (Oct.) 1941; The Sympathetic Nervous System in Neurogenic and Renal Hypertension: Experimental Correlation and Clinical Consideration, Arch. Surg. **43:** 284-305 (Aug.) 1941.

Because of this impression that both the supradiaphragmatic and the subdiaphragmatic methods of resection of the splanchnic nerves and the sympathetic ganglions had their advantages and that probably a more extensive denervation would be followed by a greater response, the two were combined into the transdiaphragmatic type of surgical procedure.[5] This procedure has been modified until now it has been accepted as one which may be applicable to a group of patients who have not responded as well as had been hoped for to the other procedures..[8f, g]

Thus have developed the different types of operation for the denervation of the so-called splanchnic vascular bed and the vessels of the lower extremities. There is no doubt that the more extensive types of denervation have their advantages but also their disadvantages.[8f, h] It has been proved both experimentally and clinically that a too extensive resection of the sympathetic nervous system is followed by changes in certain functions subservient to these nerves. In the quadrilateral sympathectomy for the relief of vascular disease, such as thromboangiitis obliterans and Raynaud's disease, there is an absence of sweating in all extremities, throwing the burden of bodily sweating on the unaffected area. This is true with the more extensive resection of the thoracic and lumbar sympathetic ganglions and, even though the response relating to the hypertension may be superior, the comfort of the patients, especially those who live in a warm climate or even those who live in a changing climate, must be considered. Excessive sweating of any part of the body can be disabling and incapacitating, as evidenced by the patients suffering from hyperhidrosis.

EVALUATION OF SURGICAL TREATMENT

In an attempt to evaluate the results of the treatment of essential hypertension by surgical means a few of the many reports have been selected to emphasize different points in the development of the philosophy of surgical treatment.

Peet,[9] in discussing the supradiaphragmatic type of operation, has emphasized the renal humoral theory of causation of arterial hypertension, expressing the belief that in most cases the primary renal ischemia is of neurogenic origin. His criteria for operation are: age below 54 years, systolic pressure consistently over 170 and diastolic pressure over 105 in a sitting position, both expressed in millimeters of mercury, a value for nonprotein nitrogen below 45 mg. per hundred cubic centimeters of blood, well compensated heart and relatively normal cerebral function, exception generally being made because of incapacitating symptoms such as excruciating headaches or evidence of otherwise hopelessly malignant hypertension. He has reported on bilateral supradiaphragmatic splanchnicectomy in over 1,500 patients, most of them followed one to twelve years, and he has stated that five to twelve years after operation 81.3 per cent of those patients still alive had had a significant drop in both systolic and diastolic pressures. Life expectancy had improved in 19 per cent of those with preoperative malignant hypertension who were still alive five to thirteen years after operation, compared with less than 1 per cent in the Keith, Wagener and Barker[4] series.

Poppen and Lemmon[10] reported on 100 consecutive cases of thoracolumbar sympathectomy performed for hypertension that had existed for one and a half to four years. They stated that, for patients below the age of 50 years who have progressive essential hypertension or patients of any age and sex whose clinical tests indicate probably fair or good results, operation is indicated. The actual age range of their patients was 15 to 54 years, and there were 42 men and 58 women. They found that contraindications to surgical treatment included cardiac or renal failure and severe retinal arteriosclerosis with fixed high blood pressure. The patient with early and slight hypertension was not operated on. They stated definitely that there was no valid method for selecting patients for sympathectomy; the clinical and laboratory tests were of greater help in predicting the probably poor results than in indicating the probably favorable results. Symptomatic relief was found to occur even if blood pressure was not reduced. When blood pressure was reduced, beneficial results occurred. In their series of 100 cases they found good results in 47 per cent, fair in 24 per cent and unsatisfactory in 22 per cent. There was a mortality rate of 7 per cent, 1 patient dying of coronary occlusion two days after the second stage procedure and 6 dying soon after leaving the hospital. It was interesting to note that normal ejaculation occurred in 41 per cent of the male patients. That the power of ejaculation is predominantly controlled by either the first or second lumbar ganglion is not substantiated in their series. Of the women, 2 had completed pregnancies without significant changes in the postoperative blood pressure. In 6 cases sympathectomy was added to nephrectomy because of unilateral renal disease.

Palmer,[11] reporting on a series from the Massachusetts General Hospital, stated that 12 per cent of 74 hypertensive patients subjected to supradiaphragmatic sympathectomy in the five years before 1940 had a fall of blood pressure to 150 systolic and 110 diastolic or less. Addition of lumbar sympathectomy to the procedure benefited even the patients with severe grades of hypertension as the earlier operation had not. By 1943, 37.6 per cent of 101 patients on whom sympathectomy from the ninth thoracic to the second lumbar vertebra had been done had a lowered blood pressure that had been maintained one to four years. Comparison with a group of 100 patients treated with a medical regimen including potassium thiocyanate therapy clearly demonstrated the benefit of surgical treatment. About 30 per cent of all patients treated by sympathectomy had died, 45 per cent had remained hypertensive and 25 per cent had normal or nearly normal pressure. In only about 12 per cent of the medically treated patients had the blood pressure fallen to normal or near normal, and the mortality rate was about the same as that for the surgically treated patients.

Palmer also stated that there were no positive tests or categories by which results could be accurately predicted for an individual patient. In general, young patients, under 40 years, especially women with less organic change, who have spontaneous fall of the pressure to normal levels as a result of rest in bed and sedation, obtain the best results. There was a diminishing return of favorable results associated with a longer period of follow-up. The recommendation from the report was that sympathectomy was regarded as the treatment of choice for malignant hypertension and should be offered to patients with early to moderate vasospastic hypertension and without clinical evidence of irreversible arteriolar disease.

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[9] Peet, M. M.: Results of Bilateral Supradiaphragmatic Splanchnicectomy for Arterial Hypertension, New England J. Med. **236**: 270-277 (Feb. 20) 1947.

[10] Poppen, J. L., and Lemmon, C.: The Surgical Treatment of Essential Hypertension, J. A. M. A. **134**: 1-9 (May 3) 1947.

[11] Palmer, R. S.: Medical Evaluation of the Surgical Treatment of Hypertension, J. A. M. A. **134**: 9-14 (May 3) 1947.

Rogers and Palmer[12] discussed the medical and surgical treatment of hypertension and stated that treatment should consist first of medical measures, with rest in bed and sedatives and, for those without renal failure, a high-protein, low-cholesterol diet. A salt-poor diet and a rice diet were tried. A fall in blood pressure often followed institution of the medical regimen by a few weeks to a few months, but the pressure rarely remained normal. Sodium sulfocyanate was given to selected patients after the initial period, and results of medical therapy indicated that symptomatic relief could be produced in 90 per cent of patients with slight and in 75 per cent of patients with moderate hypertension. Of their series of 68 patients followed for more than three years after dorsolumbar sympathectomy, 25 per cent had normal blood pressure, 30 per cent were dead and 45 per cent showed no improvement from preoperative condition.

In view of the fact that because of the low mortality and low morbidity rates associated with it there had been some discussion with regard to the subdiaphragmatic operation in certain cases of hypertension, a series of cases which had been reported on by Allen and Adson[13] ten years previously was reviewed. They discussed the indication for the operation and the results, which at that time were divided into good 24 per cent, fair 28 per cent, temporary 28 per cent and failure 20 per cent. The same patients were asked for reports from themselves and their physicians, in order that the subjective as well as the objective reactions to operation could be checked. It had become apparent in all the reviews of cases made by us at the clinic that the blood pressure readings alone did not represent the results of operation, especially after ten or more years.

The original 124 patients were followed up either by means of a review of reports contained in the case records, as some of them had returned for examination, or had died in the interval, or by means of letters. Of the original 124 patients, 110 could be traced and reported on. Of these 110 patients, 20 were living and working without symptoms and had a blood pressure below 150 systolic and 100 diastolic. Of these 20 patients, 13 were women and 7 were men; 15 were in group 2 at the time of operation, 2 were in group 3 and 3 were in group 1.

Of the 110 traced patients, 27 were working every day and were symptom free, with blood pressures of over 150 systolic and 100 diastolic. Of these 27 patients, 25 were women and 2 were men; 5 of the 27 were in group 1, 15 were in group 2 and 7 were in group 3.

Of the 110 traced patients, 33 had died; of these 33, 21 had lived seven or more years after operation. There were 30 living patients who were incapacitated and not working.

The striking factor in this review was the number of patients who were contributing members of society, happy and symptom free, whose blood pressure readings would imply a failure but who themselves were confident that the turning point in their previous illness was the operation. Palliation had been prolonged.

In attempting to evaluate the surgical treatment of hypertension it seemed to us that a more nearly true estimate could be made if the physicians who had undergone both the subdiaphragmatic and the thoracolumbar type of operation were allowed to speak. For that reason, we at the clinic reviewed our series of 31 and found that 24 of them had undergone the subdiaphragmatic type of procedure five to ten years previously, while 7 had undergone the thoracolumbar operation two years previously. Of the 24, 5 had died in from five to ten years after operation and 6 could not be located.

It was interesting to note that of the 13 known living physicians who had undergone the subdiaphragmatic type of operation, 6 had blood pressure readings that were below 150 systolic and 100 diastolic and all were symptom free. The other 7 had blood pressure readings that were above 150 systolic and 100 diastolic, but 4 of these were symptom free and were working every day while 3 were incapacitated. Personal letters from these physicians, with few exceptions, were sincere in their appreciation for the relief after operation. Many made the point that postoperatively they were improved, and, if the blood pressure tended to return to previous levels or if symptoms reappeared, they found that the medication which had failed before operation showed gratifying results.

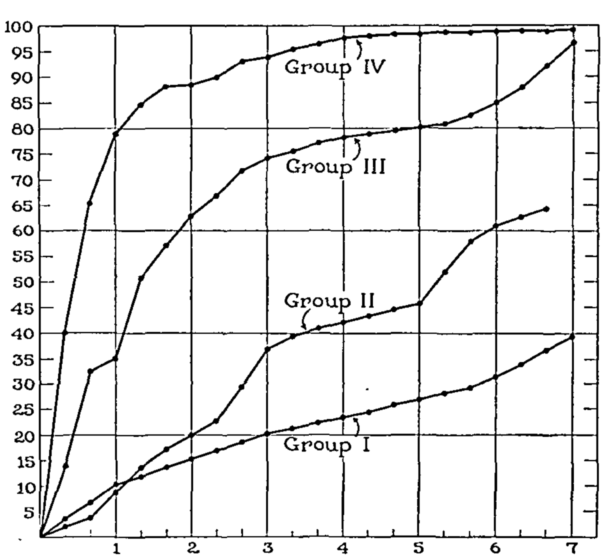

Fig. 1.—Grouping of hypertension, with representation of progress and mortality rate. The horizontal row of figures shows the years after first examination; the vertical column of figures shows the percentage of mortality.

In the group of 7 physicians who had had the thoracolumbar operation there were no deaths; 6 were asymptomatic, with blood pressure readings that were within normal limits, while for 1 treatment has been classified as having failed since the patient retained his symptoms and hypertension.

In order to compare the results of medical treatment with those following infradiaphragmatic and thoracolumbar sympathectomy and splanchnic resection, a graph was prepared which illustrates the figures compiled by Wagener and Keith.[3] It has seemed to us at the clinic that any improvement in the prognosis for the different groups as outlined should be accepted as evidence of the accomplishment of surgical treatment (fig. 1).

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[12] Rogers, W. F., and Palmer, R. S.: Essential Hypertension: Prognosis and Comparison of Medical and Surgical Treatments, Am. Pract. **1**: 459-465 (May) 1947.

[13] Allen, E. V., and Adson, A. W.: Physiologic Effects of Extensive Sympathectomy for Essential Hypertension: Further Observations, Ann. Int. Med. **11**: 2151-2171 (June) 1938.

In a review of 130 cases in which operation had been performed it was found that some of the patients had maintained fairly moderate hypertension over a period of years which suddenly increased in severity both as to blood pressure readings and symptoms. After thoracolumbar sympathectomy the symptoms were relieved and the fundus changes as well as the blood pressure readings either indicated a lower grouping for the patient or a return of the blood pressure to normal. This would seem a reliable and constant criterion for the evaluation of surgical results. It has been proved that some patients suffering from hypertension may continue for years in the same group. Others may change from group 1 to group 2 or group 3, slowly or rapidly. From our figures and observations it is apparent that operation instituted shortly after the increase in severity as evidenced by groupings has the most beneficial effect.

REPORT OF CASES

CASE 1.—A man 44 years of age came to the clinic in 1946 complaining of headache, irritability and sternal pain. He stated that his blood pressure in 1941 had been around 180 systolic but that he had not been aware of symptoms of hypertension until recently. On examination he was found to have a blood pressure of 210 systolic and 140 diastolic, and the examination of the fundus revealed lesions characteristic of group 2 plus (fig. 2). His electrocardiogram and tests of renal function did not reveal any abnormality. After thoracolumbar sympathectomy and splanchnic resection his blood pressure dropped to normal, and his fundi became normal and at the time of writing had remained so for two years. He was a radio announcer and worked every day. He had lost his irritability, headaches and all other symptoms.

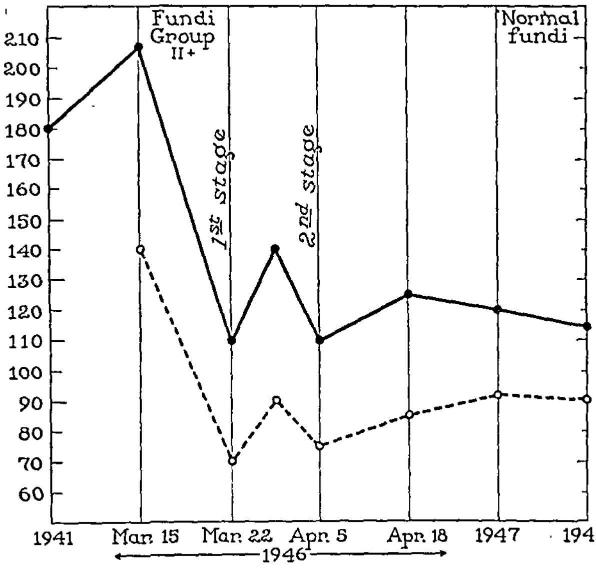

Fig. 2.—Progress of the man, 44 years old, in case 1. Ocular fundi and blood pressure were normal two years after thoracolumbar sympathectomy and splanchnic resection. The vertical column of figures shows the blood pressure.

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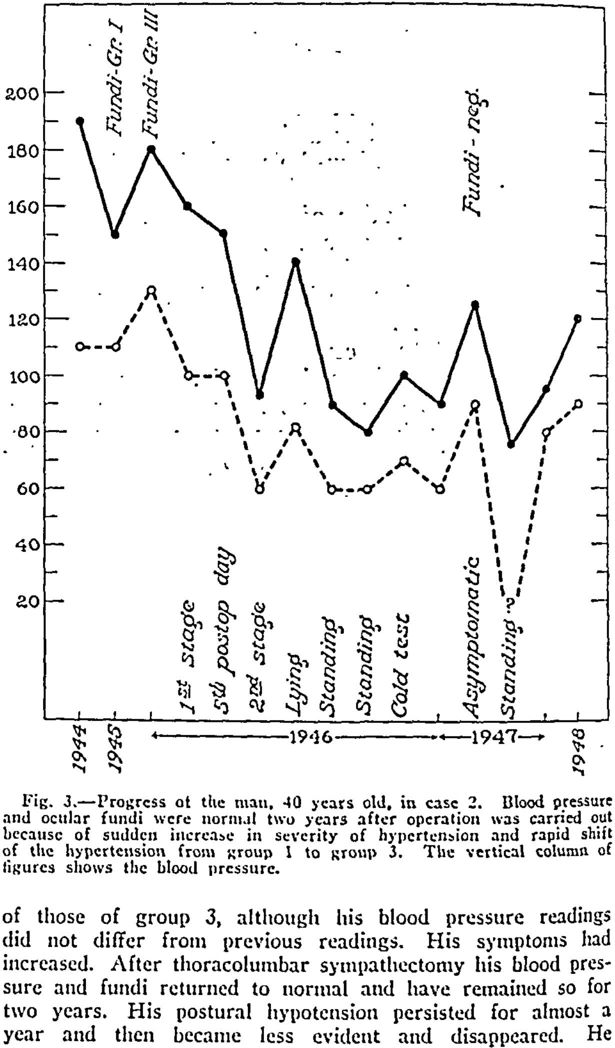

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The question of the occurrence of pregnancy after sympathetic denervation has caused considerable concern among the obstetricians. Numerous reports have been made in which normal pregnancies have been accomplished after extensive sympathectomy. Some pregnancies have had to be interrupted and cesarean section has had to be carried out. However, cases have been reported in the literature and we have had several in which the operation was done after conception in patients who, for definite reasons, refused therapeutic abortion. These patients have gone through pregnancy without elevation of blood pressure and have completed normal delivery. Sympathectomy does offer these patients a possible solution to their problem.

CASE 4.—A married woman aged 31 was seen about the second month of her pregnancy. She had been observed at the clinic for ten years, during which time it was known she had an elevated blood pressure, but the fundi were normal and there were no symptoms. Her pressure continued to be labile although elevated, and group 1 changes gradually developed in the fundi (fig. 5). She continued to remain symptomless, but the blood pressure became more nearly fixed. She then married, but was warned that pregnancy might be dangerous. When she reported that she was pregnant, it was found that there was minimal but positive damage to the kidneys and some enlargement of the cardiac shadow—just enough evidence of progression to alarm the obstetricians. Thoracolumbar sympathectomy was performed late in 1946, and there was a definite reduction in blood pressure until the abdomen began to enlarge. She went through a normal delivery, and her subsequent blood pressure returned to that of ten years previously; it was elevated but not alarming.

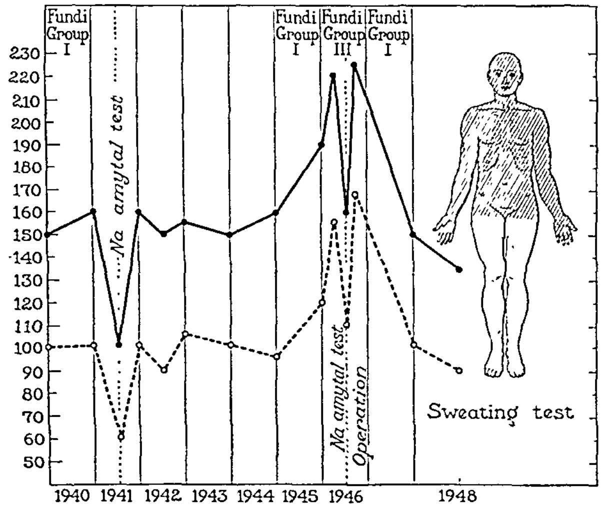

Fig. 4.—Progress of the man, 34 years old, in case 3. This patient's group 1 hypertension had been maintained for five years, at the end of which it shifted suddenly to group 3. After thoracolumbar sympathectomy the patient's hypertension returned to group 1 and remained in that group for two years after the operation. A diagrammatic representation of the loss of sweating in this case appears at the right. The vertical column of figures at the left shows the blood pressure.

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Essential hypertension of obscure causation should be looked on as a progressive serious disease requiring careful observation and treatment. The treatment should be instituted in the early stages and should be classified as expectant, physiologic and palliative.

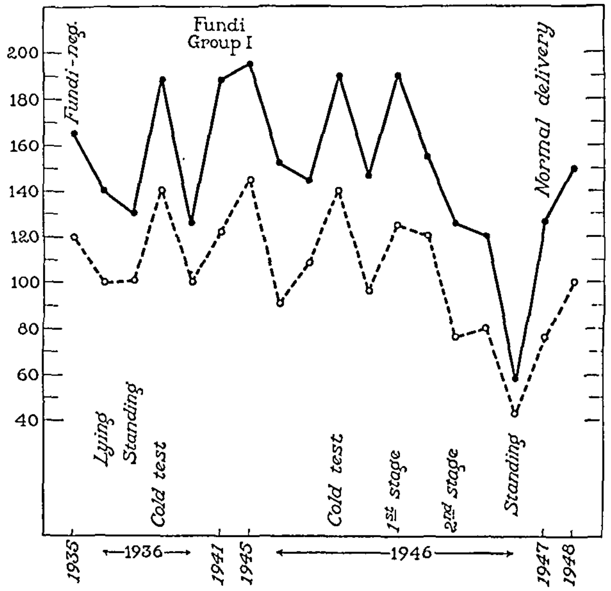


Fig. 5.—Progress of the woman, 31 years old, in case 4. Late in 1946, early in this patient's pregnancy, operative intervention was employed; delivery was normal. Blood pressure remained elevated but not alarming. The vertical column of figures shows the blood pressure.

Expectant treatment should consist of determining whether the patient is a hyperreactor and has early hypertension, of instruction as to the harmful effects of nicotine and emotional stress and of education in the proper methods of living.

The physiologic treatment comprises both medical and surgical measures and is indicated in the early stages of the disease before irreversible changes have taken place in the vascular and organic tissues of the body. This type of therapy is instituted to arrest the progress of the disease. The medical treatment consists of diets and treatment with drugs. The surgical treatment consists of operations on the sympathetic nervous system to relieve vasomotor spasm of the vessels of the splanchnic region, abdomen and lower extremities.

Palliative treatment consists primarily of surgical measures. Its objective is to relieve the incapacitating symptoms of the later stage of the disease without arresting the progress of the condition or lowering the blood pressure.

From observations at the Mayo Clinic it would seem that less radical operations might be followed by more permanent results if instituted earlier in the course of the disease. If the less radical operations are not entirely successful or if the results prove temporary, the more radical procedures can then be done.

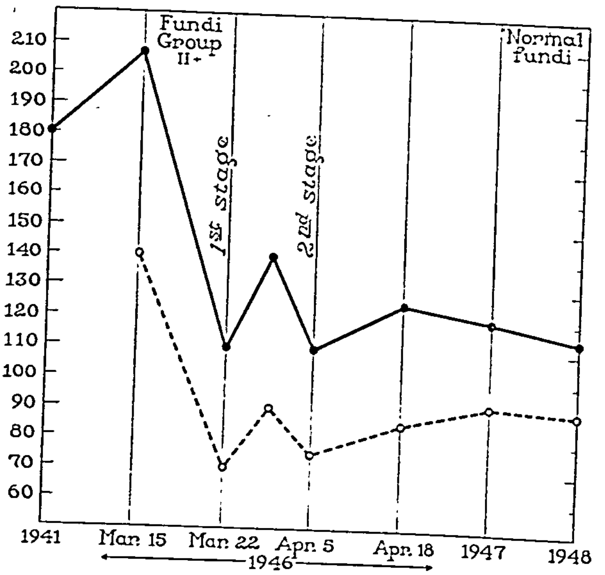
Instead of an attempt to evaluate surgical results by classification of the condition of the patients postoperatively, it would seem that a more rational basis would be the assigning of the hypertension of a patient to the correct individual group preoperatively. This, together with the prognoses associated with the several groups of hypertension, would form a background for evaluation.

lumbar sympathectomy and splanchnic resection, a graph was prepared which illustrates the figures compiled by Wagener and Keith.[3] It has seemed to us at the clinic that any improvement in the prognosis for the different groups as outlined should be accepted as evidence of the accomplishment of surgical treatment (fig. 1).

In a review of 130 cases in which operation had been performed it was found that some of the patients had maintained fairly moderate hypertension over a period of years which suddenly increased in severity both as to blood pressure readings and symptoms. After thoracolumbar sympathectomy the symptoms were relieved and the fundus changes as well as the blood pressure readings either indicated a lower grouping for the patient or a return of the blood pressure to normal. This would seem a reliable and constant criterion for the evaluation of surgical results. It has been proved that some patients suffering from hypertension may continue for years in the same group. Others may change from group 1 to group 2 or group 3, slowly or rapidly. From our figures and observations it is apparent that operation instituted shortly after the increase in severity as evidenced by groupings has the most beneficial effect.

REPORT OF CASES

Case 1.—A man 44 years of age came to the clinic in 1946 complaining of headache, irritability and sternal pain. He stated that his blood pressure in 1941 had been around 180 systolic but that he had not been aware of symptoms of hypertension until recently. On examination he was found to have a blood pressure of 210 systolic and 140 diastolic, and the examination of the fundus revealed lesions characteristic of group 2 plus (fig. 2). His electrocardiogram and tests of renal function did not reveal any abnormality. After thoracolumbar sympathectomy and splanchnic resection his blood pressure dropped to normal, and his fundi became normal and at the time of writing had remained so for two years. He was a radio announcer and worked every day. He had lost his irritability, headaches and all other symptoms.



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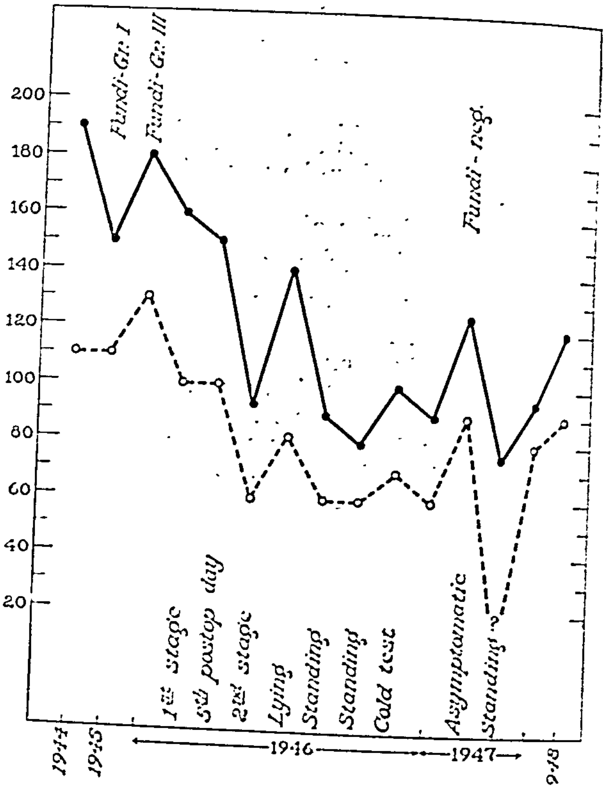

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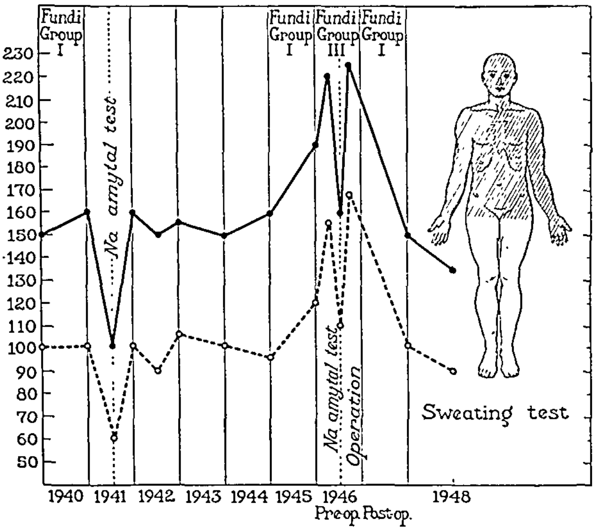

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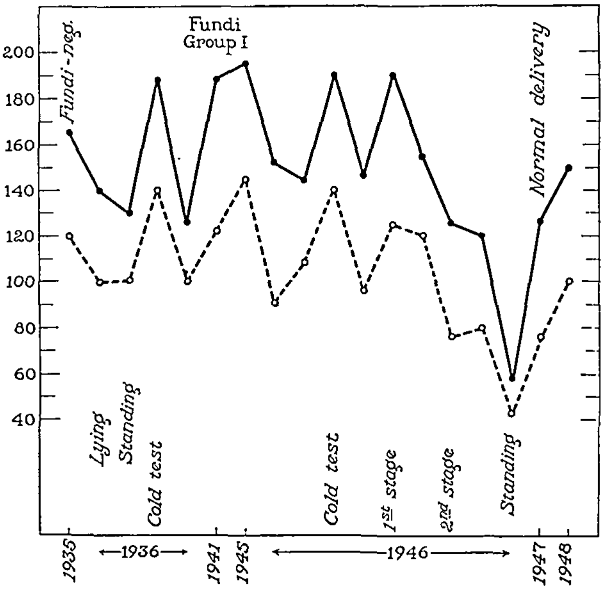

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ABSTRACT OF DISCUSSION

Dr. Geza de Takats, Chicago: This highly significant contribution by Dr. Craig illustrates the following points which need emphasis: 1. The earlier the stage of hypertension, the more favorable the result. 2. The later stages of the disease require more extensive sympathectomies. If one compares the original report of Adson and Allen, made in 1933, on the same material with the one made ten years later, one can see that the results have held up surprisingly well. This is an excellent performance. My experience with over 400 splanchnicectomies since 1940, with a transdiaphragmatic approach, would indicate that a minimal sympathectomy should certainly include the lower three thoracic and upper two lumbar ganglions. It has also been my procedure to do a more extensive extrapleural resection in cases of advanced disease, with the dorsal chain taken from the third or fourth dorsal ganglion. My co-workers and I did not believe, however, in our last year's report on the subject (The Surgical Treatment of Hypertension IV, Selection of Cases and Surgical Technique as Influencing Results—*Surgery* 24:469, 1948) that extension of the operation to higher levels including the cardiac accelerators is particularly desirable, nor is the slowing of the cardiac rate on exercise of any obvious benefit. Far more important than the extension of the resection to higher and higher levels is the preoperative study of hypertensive persons directed mainly toward two main objectives: (1) the determination of the irreversible organic damage, particular attention being directed to renal function, and (2) the estimation of the different factors producing hypertension as shown in the diagram. Of these factors the psychic factor and the corticoadrenal factor have seemed to be of particular significance. We have come to believe that a technically incomplete operation, done in the suitable case, is far more successful than a subtotal or total sympathectomy in the poorly selected case. By "poorly selected case" I do not necessarily imply advanced organic damage, since cardiac damage is surprisingly reversible and so is cerebral and retinal damage. Peripheral vascular and renal damage are far more difficult to influence, and their preoperative study is important. Atheromatous hypertension with a rigid aorta, high pulse pressure and comparatively low diastolic pressure, does not indicate surgical treatment, nor does fixed renovascular sclerosis. I most emphatically agree with Dr. Craig that the operation is not directed toward any set percental drop in blood pressure, but is a treatment of progressive cardiovascular renal disease.

Dr. James L. Poppen, Boston: I am certain that Dr. Craig and Dr. de Takats will agree with me that the problem of hypertension is to a great degree that of the internist, physiologist, pharmacologist and pathologist. The surgeons, however (and I mean Dr. Craig, Dr. Adson, Dr. Peet and, more recently, Dr. Smithwick), have been instrumental in stimulating interest in this serious disease by demonstrating that surgical intervention is of material aid in certain patients with hypertension. They have demonstrated this fact by careful analysis of patients before, during and after operation, so that certain phases of hypertension have become clearer. This has stimulated internists and others to institute studies that are bound to be fruitful in the treatment of hypertension. I have no major objections to Dr. Craig's deductions, with the exception of the extent of sympathectomy. This holds true also for Dr. de Takats. The less radical operation in cases of early disease is a fallacy, since the capacity of regeneration of the sympathetic nervous system is rapid in most patients. It is true that regeneration may take place more rapidly in certain patients than in others. Why, I do not know. It may be due to scar tissue. Less radical operations may allow for by-pass. I hesitate to subject a patient to a second operation if it seems at all possible to prevent it, because I know from experience how difficult it is to perform a thorough sympathectomy on a person who has previously had a sympathectomy. Also, to subject the patient to further postoperative neuralgias, even though temporary, does not appeal to me. The reason for my objection to less radical operations is the fact that on the basis of comparative studies made by Evans and others on 270 patients in whom the sympathetic nerves were removed from the fourth thoracic to the second lumbar ganglions, inclusive, the results were striking. These were compared with results of studies made by Dr. Lemmon and myself on 100 patients in whom various sections of the sympathetic system had been removed. The increase in satisfactory results was striking. I operated on all of the patients, with the exception of a few of the more recent patients who were operated on by Dr. Livingston. In the first series, 47 per cent obtained good results. In the second series, 63 per cent obtained good results. There were 24 per cent with fair results in the first series and 24 per cent with fair results in the second. However, there were 24 with poor results in the first series and 13 per cent poor results in the second. I disagree that the operative mortality is increased by more extensive operation. It stayed exactly the same in the two groups, being 0.5 per cent, or 1 per cent mortality. I do think that it is important to reiterate that many feel that patients will become sterile. Sterility occurred in only 40 per cent of cases; 60 per cent did not become sterile.

Dr. Frederick M. Allen, New York: I am thankful that no patient of mine has undergone operation. Elsewhere (*New York State J. Med.* 48:1306, 1948) I have criticized medical oligarchy. One manifestation may be the monopolization of medical academy and national society programs by academic representatives who know all about saltless diet from observations of a few patients for a few months. I have never qualified for any paper or discussion or symposium, because I merely originated the treatment and have employed a diet in only a few thousand cases in twenty-eight years. Kempner's more recent results are identical with mine and confirm the decided early benefits. Certainly the four year death rate is far below the old statistics. I recognize a group of seemingly refractory cases. I have no experience for judging any possible symptomatic benefits from artificial reduction of pressure in such cases. But I am the only one having experience to show that the seemingly refractory cases are often not refractory when observed for years. Even with high pressures the average progress of the patients is extraordinarily good, and the former progressive tendency is halted or somewhat reversed. Diet should be used even for surgically treated patients. Salt restriction has more than symptomatic effects. I first showed that the opposite state, namely, the profund vascular atony of shock, specifically requires salt solution, not the plasma which is still extensively misused. Selye links shock with the causation of hypertension., I emphasize my clinical proofs that salt restriction arrests progressiveness and prevents such consequences as retinitis, angina, congestive heart failure and uremia. I am not in favor of letting patients drag along in the anticipation that in selected cases at a suitable late stage one may mitigate the condition by crippling a nervous mechanism. I cannot too strongly emphasize the principle of one's beginning treatment at the earliest possible stage to prevent the late stages. I affirm this as the rational solution of the huge problem of hypertensive mortality. I welcome the surgeons' talk of prophylaxis, but I challenge them for prolonged observations of the preeminent prophylaxis, namely, diet. Agreeable menus as advised in my manual (1925) have secured fidelity. I urge at least comparison of results for a similar number of years of the series of surgically treated patients with other series of patients for whom diet was employed.

Dr. Winchell McK. Craig: I am reminded of an occasion when I was on the program of Dr. Irving Page. He was discussing the medical treatment and I was discussing the surgical treatment of hypertension. One of his remarks was to the effect that some day a discovery would be made which would cure hypertension without operation. My reply to that was that those of us who are now operating for hypertension would welcome that day. The treatment of hypertension today is a challenge to the entire medical profession, not to surgeons alone but to internists and to physiologists. When we have something better to offer than surgical treatment, we will consider it, but until such time I think that we all agree that we must continue to treat the patient with the means at our disposal to obtain relief of symptoms and retard the progress of the disease. At a recent meeting of the American College of Physicians I took part in a symposium on the treatment of hypertension, and the consensus was that the medical treatment of hypertension is successful in some cases but that those who do not respond to medical treatment should be considered for operation and that there are certain patients who benefit more from medical treatment after they have had surgical treatment. The treatment of hypertension today is still controversial, and one must keep an open mind as to the most efficacious methods of treatment. At present there seems to be no one treatment which is a solution to the problem. Salt-free, low-sodium and rice diets and new drugs, which have been or may be developed, may alter the progress of the disease, and I am sure that surgeons would not insist on operative measures if other treatments proved superior. I appreciate the discussion of Dr. de Takats, Dr. Poppen and Dr. Allen, but I would like to leave with you the idea that it behooves us all to maintain an open mind with regard to the treatment of hypertension. Some day it may not be necessary to operate for the relief of hypertension, as physiologists, internists and surgeons all agree that a physiologic mechanism is involved in the causation of hypertension which, if found, may clarify our problem.

INDICATIONS FOR REMOVAL OF NONTOXIC NODULAR GOITERS

GEORGE CRILE Jr., M.D.
and
W. S. DEMPSEY, M.D.
Cleveland

In recent years the widespread publicity given to the subjects of cancer detection and prevention, the emphasis on periodic physical examinations and the development of cancer detection centers has resulted in an increased cancer consciousness in the population at large and in the medical profession. Therefore, physicians are being consulted oftener regarding the potential malignancy of benign lesions. Notable among these are nontoxic nodular goiters.

Few physicians would deny that firm discrete adenomas of the thyroid should be removed. The controversial question is whether to advise removal of soft nontoxic nodular enlargements of the thyroid. Many of these goiters are not enlarging or causing symptoms, and the patients often are unaware of their presence until they are found on a routine physical examination.

EXPLANATION OF THE HIGH REPORTED INCIDENCE OF CARCINOMA OF THE THYROID

There is a discrepancy between the high incidence of cancer of the thyroid[1] encountered by surgeons and the low incidence of fatal cancer of the thyroid reported in vital statistics.[2] Although surgeons often state that 5 to 10 per cent of nontoxic nodular goiters are malignant, this does not reflect the true incidence of cancer of the thyroid in this condition.[3] The incidence of malignancy, as observed by the surgeon, is high because he is dealing with the selected group of nontoxic nodular goiters that are subjected to thyroidectomy.

The patients who come to the surgeon have been carefully screened, first by the patient himself, who does not often consult a doctor unless the nodule is giving evidence of growth or functional activity; second by the family physicians or internist who detects the obvious benign quality of soft poorly defined involutionary nodules in the thyroid and hesitates to advise operation, and finally by the surgeon himself, who recognizes the innocuousness of small soft multinodular goiters, reassures the patient and discourages operation. Therefore, the fact that the surgical pathologist finds 8 per cent of nontoxic nodular goiters malignant merely means that this proportion of suspicious adenomas was proved to be cancerous. In the millions of nontoxic, symptomless and innocuous goiters which never are removed, the incidence of carcinoma is so low that vital statistics rate cancer of the thyroid sixteenth in the list of organs affected by malignant disease.[4]

Another cause for the discrepancy between the surgeons' and the internists' statistics is the confusion as to what constitutes a carcinoma of the thyroid. For example, some small carcinomas of the thyroid may exist for many years without enlarging or causing serious symptoms.[5] Such tumors may escape detection because the thyroid is not examined routinely in all autopsies. This may explain the difference between the incidence of carcinoma of the thyroid as reported by the surgical pathologist and that observed by the pathologist who confines his work to postmortem examinations and who does not examine the thyroid unless there are special indications.

A third cause of variation between the surgeon's statistics and those of the internist is the method of presentation of facts. An erroneous impression as to the frequency of carcinoma of the thyroid in solitary nodules may be conveyed by inclusion in the statistics of all frank carcinomas of the thyroid, even when the clinical diagnosis is clear and when widespread metastasis is present. This is as misleading as it would be to include all ulcerating carcinomas, regardless of size, infiltration or metastasis, in a survey of the malignant potentialities of benign gastric ulcer, and to exclude from this survey all gastric ulcers which healed under medical treatment and were not resected. The clinical carcinomas have been added to the total, and the obvious benign lesions that were not operated on have been subtracted from the total, with the result that the figures, although accurate, create a false impression.

PRESENTATION OF MATERIAL

As an indication of how the presentation of material may influence the statistical conclusion, we have analyzed our experience with carcinoma of the thyroid.

In a series of 768 thyroidectomies thirty malignant tumors were found, an incidence of 3.9 per cent. During this same period five inoperable malignant conditions of the thyroid were encountered, three of which have been excluded from this study because the clinical diagnosis was not confirmed by biopsy. The incidence of malignant tumors in all nodular goiters (with and without hyperthyroidism) was 5.6 per cent (table 1). Ten and nine-tenths per cent of nontoxic goiters were malignant, as well as 24.5 per cent of the solitary tumors.

A definite diagnosis of malignancy was made preoperatively in 27 of the 30 patients with confirmed

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From the Cleveland Clinic and the Frank E. Bunts Educational Institute.

Read before the Section on Surgery, General and Abdominal, at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

1. Cole, W. H.; *Slaughter, D. F., and Rossiter, L. J.: Potential* Dangers of Nontoxic Nodular Goiter, J. A. M. A. **127:** 883-888 (April 7) 1945.

2. Rogers, W. F.; Asper, S. P., Jr., and Williams, R. H.: Clinical Significance of Malignant Lesions of Thyroid Gland, New England J. Med. **237:** *569-576 (Oct. 16) 1947.*

3. Hinton, J. W., and Lord, J. W., Jr.: Is Surgery Indicated in All Cases of Nodular Goiter, Toxic and Nontoxic? J. A. M. A. **129:** 605-606 (Oct. 27) 1945.

4. Pack, G. T., and Livingston, E. M.: Treatment of Cancer and Allied Diseases, New York, Paul B. Hoeber, Inc., 1940.

5. Crile, G., Jr.: Papillary Carcionma of Thyroid and Lateral Cervical Region: So-Called "Lateral Aberrant Thyroid," Surg., Gynec. & Obst. **85:** 757-766 (Dec.) 1947.

malignancy of the thyroid. In 2 more cases the diagnosis of malignancy was suspected but not favored. In only 1 case was malignancy not diagnosed or suspected preoperatively (table 1). In this case a nodule was removed because of its hardness and proved to be a papillary carcinoma.

These data lend themselves to several forms of misleading deductions. It can be shown, for example, that carcinoma of the thyroid is commonly present in apparently innocent solitary adenomas. Three of 30 proved carcinomas occurring in 98 solitary nodules of the thyroid were not definitely diagnosed before operation. It would be correct to state that over 3 per cent of the solitary nodules that we have removed proved to be carcinomas undiagnosed before operation. On the basis of these statistics a patient with a solitary nodule in the thyroid could be informed that there was one chance in thirty that the tumor was malignant, even though there was no clinical evidence of cancer.

Table 1.—*Incidence of Malignancy in Nodular Goiter (1937-1946)*

	Incidence of Malignancy
I. In 537 nodular goiters (toxic, nontoxic, benign and malignant) 30 malignant tumors were present..........	5.6%
A. In 263 nodular goiters with hyperthyroidism no malignancy was present..............................	0.0%
B. In 274 nodular goiters without hyperthyroidism 20 malignant growths were present......................	10.9%
1. Of 176 multinodular goiters, 6 were malignant....	3.4%
2. Of 98 solitary tumors, 24 were malignant........	24.5%

Table 2.—*Accuracy of Preoperative Diagnosis of Malignancy in 537 Nodular Goiters*

98 solitary tumors without hyperthyroidism	24 malignant growths	21 definitely diagnosed preoperatively
		2 suspected but not diagnosed preoperatively
		1 not suspected or diagnosed preoperatively
	74 benign tumors	61 diagnosed as benign
		13 suspected of being malignant but proved benign
		0 diagnosed as malignant but proved benign
176 multinodular goiters without hyperthyroidism	6 malignant growths	6 definitely diagnosed preoperatively
		0 suspected but not diagnosed preoperatively
		0 not suspected or diagnosed preoperatively
	170 benign tumors	164 diagnosed as benign
		6 suspected of being malignant but proved benign
		0 diagnosed as malignant
263 nodular goiters with hyperthyroidism	0 malignant growths	262 diagnosed as benign
	263 benign tumors	1 suspected of being malignant but proved benign
		0 diagnosed as malignant

Approaching the subject from a different angle, it can be proved unlikely that a solitary nodule contains an unsuspected carcinoma. Although the diagnosis was not made before operation in 3 of the 98 cases, it was suspected in all but 1. Hence it would be correct to say that unsuspected carcinoma was found in only 1 per cent of the solitary nodules of the thyroid (table 2).

To estimate the true incidence of carcinoma of the thyroid it is necessary to know how many patients with solitary nodules were observed at the Cleveland Clinic during the same period. Analysis of the charts of 500 consecutive patients, excluding those who entered with the complaint of thyroid disease, or in whom operations on the thyroid were advised or performed, indicates that approximately 4 per cent had symptomless nodular goiters. These were incidental observations of the physical examination. Of those with nodular goiters about 25 per cent appeared to have solitary nodules. By projecting this experience over the period of observation, approximately 1,237 patients with solitary nodules of the thyroid probably have been examined and advised against having the goiter removed. It is impossible to state how many, if any, of these nodules subsequently proved to be malignant. However, we have not yet encountered a carcinoma of the thyroid in any of these patients. The claim might be made, therefore, that the incidence of unsuspected carcinoma of the thyroid in innocuous-appearing solitary adenomas is 1 in 1,335 (1,237 not operated on plus 98 operated on). This is a fallacious line of reasoning because there is no proof that ultimately some carcinomas will not appear.

Most of the carcinomas which are not suspected or diagnosed before operation are of the slowly growing, highly differentiated type. Since most of these are curable even after they have been present for years, and most of the undifferentiated carcinomas are incurable regardless of how early they are removed, it is not likely that earlier recognition and removal of carcinomas would alter the ultimate prognosis in more than 1 case in 5. Thus, if we were to institute a policy of removing all solitary adenomas of the thyroid regardless of history, size or consistency, we should have to remove 6,675 (5 times 1,335 total patients with solitary nodules) solitary adenomas to prevent 1 patient from dying of cancer. Regardless of the safety of thyroidectomy, it is doubtful whether 6,675 goiters could be removed without more than 1 postoperative death. This does not take into account the morbidity from technical accidents or the economic aspects of operation performed on such a scale.

Such deductions as these, which are based on statistical surveys of unfollowed cases, are clearly misleading. Conclusions regarding the innocuousness of nodular goiters based on reasoning such as this are as mistaken as would be the opposite if based only on selected surgical cases. Until we know more accurately how often benign adenomas become malignant it would seem wise to base indications for thyroidectomy on clinical judgment rather than on statistical surveys of selected or unfollowed cases.

COMMENT

Surgeons realize that conservative treatment of adenomatous goiters is frequently unwise. Often a patient with a hard enlarging tumor of the thyroid has been reassured by a physician, given a little iodine and advised to disregard the goiter. Such tumors are often malignant, and delay in treatment may prevent cure. These occasional errors have encouraged an overstatement of dangers of carcinoma of the thyroid in nodular goiter. Surgeons who suggest that all nodular enlargements of the thyroid should be removed regardless of history, physical observations or the apparent benign quality of the involutionary nodules are conscientiously attempting to give their patients maximum protection against carcinoma. However, indiscriminate thyroidectomy, performed on every one with nodular goiter, probably would entail a morbidity and mortality quite out of proportion to the number of cases of fatal cancer that it might prevent.

An enlarging adenoma of the thyroid, an adenoma which is firm and of different consistency from the rest of the gland or one which is giving pressure sensations denoting growth should not be disregarded. Conspicuous adenomas should be removed for cosmetic reasons. All adenomas in children must be regarded with grave suspicion, as must discrete adenomas in adults, regardless of age. However, small soft nodular enlargements which have been examined and considered innocuous by a physician thoroughly familiar with diseases of the thyroid may be disregarded. Removal of such goiters is not justified and is comparable to indiscriminate removal of uteri and breasts for minimal benign lesions.

The physician who has not had considerable experience may have difficulty in recognizing the possible malignancy of a tumor of the thyroid. For this reason it is urged that the decision relative to removal of a tumor of the thyroid should be made by a physician or surgeon particularly qualified by experience and training.

Carcinoma of the thyroid is not necessarily a disease of old age. Since the tumors appear before the age of 20 in about one fourth of the patients with papillary carcinoma, and since the average age of patients with papillary carcinomas and lateral cervical metastasis is only 31.9 years, it is important to remember that a tumor of the thyroid in a child is more apt to be malignant than in a woman of 70. Carcinoma is almost as common in young adults as it is in older persons.

The presence of carcinoma cannot be excluded merely because the tumor has remained the same size. A tumor which has already metastasized to many cervical nodes may not enlarge for years and may never metastasize from the neck. For more than twenty years we have observed a patient with proved metastasis from a papillary carcinoma of the thyroid who has refused all treatment. The nodules in the thyroid and lateral cervical region are only a little larger than when they first appeared twenty-seven years ago.

Most malignant tumors of the thyroid are hard, or at least firm, and usually are of a different consistency than the nontumorous thyroid. The firmness and discreteness of the tumor is the most reliable indication in establishing suspicion of carcinoma of the thyroid.

Although the incidence of carcinoma is higher in nodular goiters, it is difficult to prove that carcinomas have their origin in benign adenomas. It is reasonable to suppose that many, if not most, carcinomas of the thyroid are carcinomas from the beginning and arise from the parenchyma of the thyroid as do benign adenomas. There is little proof that a benign tumor of the thyroid becomes malignant oftener than the goitrous thyroid parenchyma.

Since we cannot prove that carcinomas of the thyroid often arise within the substance of a benign adenoma, and since the incidence of carcinoma of the thyroid is so low, even in areas in which endemic goiter is prevalent, there is little possibility that a given adenoma of the thyroid will become malignant. The pertinent concern is whether or not the adenoma is cancerous at the time of examination. There is probably less chance that a benign adenoma will become malignant at some future date than that carcinoma will develop in the apparently normal uterus or breast.[6]

The conventional subtotal thyroidectomy performed "prophylactically" for nontoxic nodular goiter does not give more than partial protection against the subsequent development of carcinoma in the remnants of the gland. A rapidly growing and fatal carcinoma of the thyroid has been observed to develop in a patient who had undergone "prophylactic" thyroidectomy thirty years before.

No surgeon would willingly subject a patient with a presumably benign goiter to the certainty of myxedema and the risk of tetany, which are involved in a total ablation of the thyroid. Remnants of the thyroid tissue remain after "prophylactic" subtotal thyroidectomy, and since these remnants have been subjected to the same pathologic stimulation that originally caused the development of the adenoma, a further development of adenomas or carcinomas is always possible. Moreover, a malignant tumor may be overlooked and left in the remnants of the thyroid. We have removed a papillary carcinoma of the thyroid less than a year after a "prophylactic" thyroidectomy had been performed for adenomatous goiter without hyperthyroidism. Neither surgeon nor pathologist discovered the carcinoma at the first operation, although we feel certain that it must have been there at that time.

Thyroidectomy for nodular goiter should be accomplished in such a way as to remove completely any carcinoma which may be present. Unfortunately, the same surgeon who advises the removal of an adenoma as a prophylaxis against the development of carcinoma frequently leaves carcinomatous tissue just as he would leave normal thyroid tissue in operations performed for benign lesions. Since the tumor had not been completely removed, the operation has failed in its purpose.

Surgeons should accustom themselves to thinking of discrete tumors of the thyroid not as benign adenomas which may become malignant at some remote time but rather as tumors which may be cancerous at the time of operation. If they did this they would remove the entire tumor, and should the tumor prove to be a carcinoma the chances of cure would be increased.

SUMMARY

Ten and nine-tenths per cent of surgically removed nontoxic nodular goiters and 24.5 per cent of surgically removed nontoxic solitary tumors of the thyroid proved to be malignant. The diagnosis of malignancy was made or suspected and so recorded before operation in over 90 per cent of the patients with malignancy of the thyroid.

These figures can be so presented as to indicate that (*a*) over 3 per cent of nontoxic solitary nodules of the thyroid are undiagnosed malignant tumors or (*b*) there is only 1 chance in 6,675 that removal of a nontoxic solitary nodule in the thyroid will give protection against death from carcinoma of the thyroid.

It is impossible, without better definition of histologic criteria of malignancy and without better autopsy and clinical statistics on the incidence of adenomas and carcinomas of the thyroid, to make an accurate statistical report of the true incidence of carcinoma of the thyroid in nodular goiters.

The high incidence of carcinoma of the thyroid reported by surgeons is to a large measure dependent on the fact that the obviously benign nodules in the thyroid are screened out by the patient or by the internist and are not seen by the surgeon.

Solitary adenomas of the thyroid in patients of any age should be viewed with suspicion especially (*a*) in

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[6] Fatal carcinoma of the breast is more than thirty times as common as fatal carcinoma of the thyroid (Incidence of Cancer, American Cancer Society, 1949). Carcinoma of the thyroid is only about seven times as common in areas of endemic goiters as it is in nongoitrous areas (Ward. R.: Malignant Goiter; Survey of Geographical Types, West. J. Surg. 43: 494-504 [Sept.] 1935). In the goitrous thyroid, therefore, carcinoma does not develop as frequently as in the apparently normal breast.

children, (*b*) when enlarging or giving symptoms of discomfort or pressure, (*c*) when firm or hard and (*d*) when discrete and of a different consistency from the remainder of the thyroid. Adenomas large enough to be of cosmetic importance should be removed. Soft involutionary nodules in the thyroid, especially when multiple and not large enough to be conspicuous, can be disregarded if they are not enlarging or causing symptoms.

The majority of malignant tumors of the thyroid can be recognized or at least suspected if a high index of suspicion is maintained regarding discrete adenomas. The danger is not that a discrete adenoma may become malignant, but rather that it is already malignant. If a discrete adenoma of the thyroid is to be removed, the operation should be so designed as to remove all of the tumor and cure the cancer if it is present.

Until better statistics on the true incidence of carcinoma in adenomas of the thyroid are available, it is suggested that indications for removal of nodular goiters be based on clinical judgment rather than on statistical surveys.

ABSTRACT OF DISCUSSION

Dr. Charles W. Mayo, Rochester, Minn.: I have known for a long time and have admired Dr. Crile. I admire him because he has no fixed ideas and he is capable of changing. I bring that up because he was of that school that believed for a long time that the aberrant thyroid did not have its primary locus in the lobe itself. There are three types of adenocarcinomas of the thyroid. There is the papillary type, the so-called aberrant type of thyroid. There is the adenocarcinoma which is contained within the adenoma of the thyroid itself, or it is outside the adenoma. There is also the diffuse type of adenocarcinoma. The first, or papillary, is low grade, and the second, within or just without the adenoma, is of an intermediate grade. The diffuse type is usually a high grade type of adenocarcinoma. The papillary is considered more radiosensitive than the others. My co-workers and I have also an occasional case of sarcoma of the thyroid. Another unusual type is the squamous cell tumor of the thyroid, and we occasionally also see metastasis in the thyroid. I remember a case in which there was a carcinoma of the sigmoid metastasized to the thyroid. While statistics are not the aim alone, there is no study of any subject in medicine which does not entail the analysis of statistics. A review that Dr. Black made of cases between the years 1936 and 1945 showed that at the Mayo Clinic we see about 4.6 per cent carcinomas in the adenomatous type of gland. Dr. Kennedy made a study of children, and it was his observation that in patients under the age of 15 with single adenoma one third of the growths were malignant. I agree with Dr. Crile that the preoperative diagnosis has to be made on a clinical basis. I congratulate him on his figures, on the accuracy of the diagnosis preoperatively. Over 90 per cent is a very high rating on accuracy. I think that most of the histories, however, will show the suspicion rather than the accurate diagnosis preoperatively, which, after all, is approximately the same. But still we do see many as a pathologic surprise—a surgical surprise. I agree with Dr. Crile's philosophy as he expressed it in connection with dealing with these adenomas and the question of malignancy in thyroid disease.

Dr. Warren H. Cole, Chicago: At the Illinois Research Hospital our figures on the incidence of carcinoma of the thyroid are very similar to those reported by Dr. Crile and perhaps should be, since the patients in both series come from the Great Lakes goiter belt. Our incidence of carcinoma in solitary nontoxic nodular goiter over an eleven year period was 24.7 per cent compared with 24.5 per cent in his series. However, our incidence of carcinoma in our entire series of 274 solitary and multinodular nontoxic nodular goiter was 17.15 per cent as compared with 10.9 per cent in his series. The difference lay in a greater incidence of carcinoma in multinodular goiter in our series, namely, 9.0 per cent compared with 3.4 per cent in his series. The incidence of carcinoma in toxic diffuse and toxic nodular goiter is so low (only a fraction of 1 per cent in the former and only slightly greater in the latter) that we should not include these types in our figures.

The incidence of carcinoma in our series should no doubt be larger than Dr. Crile's because all of our patients are charity patients, whereas most of his are private patients. Charity patients do not come to the physician as soon as do private patients. Our series show that the danger of carcinoma is much greater in nontoxic nodular goiter in male than in female subjects and slightly greater in white than in Negro subjects. I agree with Dr. Crile that the percentage of carcinoma in thyroidectomy specimens is not a true index of incidence. However, the screening in our series must be attributed only to the patients, and not to the doctors, because my co-workers and I have advised operation for all solitary nontoxic nodular goiters since our first report dealing with data up to January 1944. With few exceptions, all our patients have consented to operation. Nevertheless, this policy has not decreased the incidence of carcinoma in this group. The slight change noted was actually an increase, namely, from 24.0 per cent (1936 to 1943) to 25.5 per cent (1944 to 1947) carcinoma in cases of solitary nontoxic nodular goiter. The criticism has often been made of reports on incidence of carcinoma of the thyroid that the criteria of diagnosis have not been sufficiently strict. From the data obtained in our series at Illinois Research Hospital it appears that we have a very good answer to this criticism. Of the 16 cases of carcinoma of the thyroid treated here during the past four years, we have been able to follow 14. Of these 14 patients, 10 are already dead, presumably of metastases. An additional patient has metastases, but is still alive. We know that most of these deaths were of carcinoma, but cannot prove that all were, although, since patients with carcinoma of the thyroid are relatively young, it is not likely that many of them died of natural causes.

Dr. George Crile Jr.: Dr. Mayo mentioned the subject of fixed ideas. I think that thyroid is a subject on which it is very difficult to have any fixed ideas today, and I think that anyone who does have them will be in trouble because of the changes due to new methods of treatment. Dr. Mayo made one statement which I do not question because I am not in a position to do so, but I believe that it requires some proof; that is, the sensitivity of the papillary type of carcinoma to irradiation. Our experience has been that these tumors are not uniformly sensitive to irradiation. A misleading impression may be obtained because these tumors are of such low malignancy that they may be present for many years without enlarging at all, with no treatment. I emphasize this because I think that surgeons should not rely on roentgen rays in these cases. These are the most favorable cases from the surgical point of view, and one should attempt to eradicate these papillary tumors by surgical removal. With respect to the carcinomas that are not recognized before operation, I should like to point out also that there is a type of tumor in the thyroid which has been designated as an adenocarcinoma and which histologically is typical of that. These are the tumors which have been reported by Graham, Goetsch and recently by Black and others, which are only 1 or 2 cm. in diameter and are often found in diffuse hyperplastic glands. These are also found at autopsy, and their presence is rarely noticed prior to operation. They rarely, if ever, recur or metastasize and are of questionable malignancy. It has been our experience that the majority of undifferentiated rapidly fatal carcinomas of the thyroid, such as Dr. Cole must have been dealing with in this group of cases, arise without warning in thyroids that were previously considered normal. The patient may not have even been aware that there was any tumor in the thyroid, and by the time the doctor sees them they are usually incurable. I do not mean to be pessimistic about prophylactic operations. I emphasize again that nodules of the thyroid and tumors of the thyroid have malignant

PHYSICAL TREATMENT OF THE HEMIPLEGIC PATIENT IN GENERAL PRACTICE

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During the past several decades spectacular advances in the preventive and therapeutic aspects of medicine have resulted in a greater life expectancy for the general population. Physicians have been faced with the responsibility of caring for an ever increasing number of patients with chronic disease processes common to later life. Cerebrovascular lesions with their resultant motor disability are prominent among this group; yet, for the most part, the problems of the hemiplegic patient remain unsolved.

The general practitioner of medicine is primarily responsible for the care of this large group of hemiplegic patients. It is essential that he face this task with realistic optimism, for much can be done to help restore these persons to lives of independence and productivity.

Relatively little is known of the basic neurophysiologic mechanisms involved in the production of this clinical syndrome. There is an even greater lack of knowledge relative to the factors which influence recovery. Basic concepts, such as the origin of the pyramidal tracts, the identity of the "motor cortex," the mechanism of the production of "spasticity" in human beings and the role of commissural, associational and projection pathways,[1] remain unsettled. Yet there are some available facts which should be utilized in one's understanding and adequately treating human motor dysfunction as it occurs in the hemiplegic patient.

Cerebrovascular accidents are usually associated with some degree of "neurologic shock," characterized by flaccidity. The duration of the period of shock and flaccidity varies greatly. It may disappear within a few hours, or it may persist for several weeks or more. True, prolonged flaccidity is a poor prognostic sign,[2] in terms of recovery of motor function. As flaccidity disappears, the involved members become spastic, a sign of returning function. The hemiplegic patient then enters the second phase of recovery, which is slower and more prolonged. Recovery in this phase may be due to what Hughlings Jackson calls "compensation." He believes that movement of one side of the body has bilateral representation in the cerebral cortices, although to different degrees. Many investigators have postulated some form of "functional reorganization" of the remaining cerebral tissue following cortical lesions. Whether this is due to synaptic modification, neurochemical processes or to conditioning and relearning remains a mute question.

Basically, the prognosis will depend on the nature, size and location of the lesion. Age, sex and side involved, in themselves, are not of great importance. In addition to prolonged flaccidity, several other factors adversely affect prognosis. These include severe emotional disturbances or psychotic phenomena, lack of motivation, presence of associated disease, such as chronic nephritis, diabetes and syphilis, and previous "strokes." Prognosis is also adversely affected by delay in institution of physical treatment and by the development of contractures and deformity. Functional recovery, as a rule, is best in the group of patients in which thrombus formation is the causative factor, poorer in the hemorrhage and embolic groups.

Functional capacity does not correlate well with return of motor power. It is usually slower in returning than is motor power. Function returns earlier and to a greater degree in the lower extremity as compared with the upper extremity. The proximal segments in a given extremity return sooner than the distal ones. For example, hip function returns before lower leg or foot, upper arm before hand. Paralysis of an individual muscle or group is rarely seen in the hemiplegic person; there is loss of gross "movement," such as the ability to dorsiflex the foot, rather than paralysis of the anterior tibial muscle, per se. The seat of individual muscle action is the "motor cortex." Movement is represented in the general area of the frontal lobe.

CHART 1.—*Method of Scoring Units of Motor Function*

Motor Test Grades	Unit Score
Zero	0
Trace	1
Trace plus	2
Poor minus	3
Poor	4
Poor plus	5
Fair minus	6
Fair	7
Fair plus	8
Good minus	9
Good	10
Good plus	11
Normal	12

TREATMENT

The aims of physical treatment in general are to improve motor function, increase functional capacity, prevent or correct deformity and provide for the over-all adjustment of the hemiplegic patient to the demands of daily life.[3] In accomplishing these aims, the practitioner may utilize a wide variety of agents or technics of physical medicine, which embraces the fields of physical therapy, occupational therapy and rehabilitation.

There are three basic considerations in planning treatment. They are: (1) when to start physical treatment, (2) the measurement of disability and progress and (3) the proper selection of the agents or technics to be used.

Treatment should be instituted as soon as possible. In the majority of cases it can be started within the first week following onset. There are few medical contraindications to early treatment in most cases, especially to passive movement of the involved extremities daily, which is particularly important. The fear of producing extension or reactivation of the cerebral vascular lesion is apparently without justification, as indicated by clinical experience.

Much of the crippling deformity seen in this group of patients can be avoided by early adequate treatment. The common occurrence of contractures about the

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[1] Cobb, S.: Bull. New York Acad. Med. **19**: 34-46 (Jan.) 1943.

[2] Aring, C. D.: Flaccid Hemiplegia in Man, Arch. Neurol. & Psyhciat. **43**: 302-317 (Feb.) 1940.

[3] Deaver, G. G., and Brown, M. E.: Physical Demands of Daily Life, New York Institute for Crippled and Disabled, 1945.

shoulder joint, the so-called "frozen shoulder," can be avoided as can the flexion deformities of wrist and fingers, the externally rotated hip, the flexed knee and the dropped foot.

Without objective measurement of the extent of disability and progress in recovery, treatment can be only intuitive, empiric and inadequate. Ideally, such measurement should include determination of muscle strength, range of joint motion and functional testing of the factors inherent in daily living. A method of evaluation which I[4] have found useful, is as follows:

With a modified Lovett method of manual muscle testing, muscle strength is graded in twelve gradations from 0 through normal. Numerical values, units of motor function, are assigned to each gradation (chart 1). There are twenty movements so tested in the upper extremity (chart 2), so that the score would range from 0 (in complete flaccid paralysis) to 240 units in the normal arm (20 × 12). Similarly, fifteen movements are tested for in the lower extremity (chart 3) with a possible score of 0 to 180 units. Thus it is possible at any moment to determine objectively the extent of disability or percentage return of motor power in a given hemiplegic patient.

Chart 2.—*Motor Test for Upper Extremity*

	Grade	Motor Units
Shoulder		
Flexion—extension	T +, P −	5
Hyperextension	F −	6
Abduction—adduction	F +, F	15
External rotation—internal rotation	P, F +	12
Elbow		
Flexion—extension	G −, F	16
Pronation—supination	P −, P	7
Wrist		
Palmar flexion	T	1
Dorsal flexion	T	1
Radial flexion	O	0
Ulnar flexion	O	0
Hand (fingers)		
Flexion—extension	P −, T	4
Abduction—adduction	T, T	2
Opposition	O	0
Score (normal 240)	Total	69 units 29% of normal

Chart 3.—*Motor Test for Lower Extremity*

	Grade	Unit Score
Hip		
Flexion—extension	G, F −	18
Hyperextension	P +	5
Abduction—adduction	G +, G +	22
External rotation—internal rotation	G F	17
Knee		
Flexion—extension	F, G +	18
Ankle		
Plantar flexion	F −	6
Dorsal flexion	N	12
Inversion	P	4
Eversion	F	7
Toes		
Flexion—extension	O, T	1
Score (normal 180)	Total	110 units 61% of normal

In addition, the patient is tested as to his ability to perform the activities essential in daily living (chart 4). Using a numerical grade for each of the sixty items tested, the score possible ranges from 0 to 180. It is thus possible to determine improvement in percentage values at subsequent testings. Such functional testing is of great importance to the physician, for it indicates what the patient can do with his disability and what he must be taught to do.

It is obviously difficult and time consuming to carry out such detailed testing in the busy routine of a general practice. However, some simpler but similar plan of testing can be worked out to suit the individual physician's need. From the point of view of measuring the extent of involvement and progress it is invaluable. Further, it serves as a basis for instituting physical treatment truly adequate to meet the individual patient's needs.

As previously indicated, there are numerous effective agents and technics available to the practitioner in the management of his hemiplegic patient. Any combination of the following items may be required in the individual case:

I. Physical Therapy
   1. Heat (hot packs, infra-red, paraffin, etc.)
   2. Massage
   3. Electrotherapy, i. e., low frequency current for electrical stimulation
   4. Mechanotherapy (pulley exercises, shoulder wheel, parallel bars, etc.)
   5. Exercise (passive, active assistive, active and active resistive, muscle reeducation, gait retraining, speech, etc.)
   6. Appliances (splints, braces, crutches, canes, etc.)

II. Occupational Therapy
   1. Diversional activities (tonic)
   2. Functional activities, i. e., fine coordination of fingers, hands, etc. (kinetic)
   3. Prevocational (metric)

III. Rehabilitation
   1. Physical
   2. Psychologic-psychiatric
   3. Social
   4. Educational
   5. Vocational

There are three principal indications for the use of heat in hemiplegia. They are the presence of pain, spasticity and edema. Any form of heat, therapeutically active, will suffice, although many patients seem to fare better with moist heat in the form of hot packs. Heat should be followed by massage, especially if edema is present. Aside from these limited indications, heat and massage are of little value. It is infinitely more important to devote time to the functional program of retraining and movement reeducation.

There is a limited field of usefulness for low frequency currents, such as the interrupted galvanic. Occasionally, when flaccidity persists, electrical stimulation will serve to maintain tone and prevent atrophy. It may also be of value in the initiation of the program of movement reeducation. Spastic groups should not be stimulated, since this would tend to accentuate existing muscle imbalance.

Movement reeducation is of prime importance. It must be done carefully, indicating to the patient origins and insertions and type of movement desired. Often, reciprocal motion or use of the good extremities first will be of help. It is surprising how very frequently movement is possible even though the patient, on direct questioning, denies ability to use the part. Walking reeducation should be graduated as progress is made.

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[4] Dinken, H.: Arch. Phys. Med. 28: 263-272 (May) 1947.

As a general rule, when the quadriceps can function against gravity and there is sufficient stability at the hip and ankle, the patient should be gotten up. Every attempt should be made to make the patient ambulatory as soon as possible. Some mechanical aid may be required, at first, in the walking program. Postural and balance training should be incorporated in the program.

Pulley exercises are of great value in the treatment of the hemiplegic patient. They offer reciprocal motion which is invaluable in relearning. Secondly, they permit adequate stretching of contractures, such as occur in the shoulder. The patient is responsible for the movement and hence does not fear the pain of passive stretching done by some one else. An additional increment of several degrees of motion can frequently be obtained.

Appliances are often indicated. Splints may be made of plastic or of padded plaster shells. They are especially useful in prevention of contractures of the wrist and fingers. A short leg brace with a 90 degree stop at the ankle may be required to correct a persistent drop foot which interferes with walking. The use of a foot board early, to keep weight of the bed clothes from the lower extremities, is of value. Sandbags or pillows may be used to maintain normal alinement in bed.

Chart 4.—*Functional Test of Activities Inherent in Daily Living*

Activity	No. of Items	Normal Score	Test Score
1. Locomotion and traveling	22	66	14
2. Dressing activities	8	24	6
3. Toilet activities	7	21	13
4. Eating activities	8	24	10
5. Hand activities	15	45	17
Total	60	180	60 30% of normal

Occupational therapy utilizing the arts and crafts provides many activities designed to improve muscle strength, coordination and endurance. These activities are also valuable in providing reciprocal motion and movement reeducation. Properly prescribed and carried out, it is invaluable as a morale booster and as an outlet for the patients' useless anxiety. Remember, action absorbs anxiety; however, it is more important for the patient to learn left-handed writing or shoe string tying than it is to weave a rug. Activities must be provided that are both diversional and useful.

As the final step in the development of self reliance and independence, the physician must make available to the hemiplegic patient a rehabilitation program aimed at returning him to society as a productive rather than a dependent citizen. Most communities have scattered rehabilitation services available. These must be coordinated and integrated into the therapeutic program.

SUMMARY AND CONCLUSION

An objective method of evaluating disability and progress of the hemiplegic patient is presented. Factors influencing recovery of function are briefly discussed. The nature and scope of physical treatment are outlined, with stress laid on the importance of early individualized therapy. Recovered functional capacity, in this important disabling condition, can be definitely increased by adequate physical treatment.

PANEL DISCUSSION

Dr. Sedgwick Mead, St. Louis: What is the best approach to the treatment of weakness of the extensors of the wrist and fingers in the hemiplegic patient?

Dr. Harold Dinken: True weakness of the extensors is a rather common occurrence. The thing that makes it difficult is that the flexors are usually spastic and contracted, thus preventing the extensors from acting. In the great majority of the hemiplegic patients, if one would prevent the flexion deformity, the extensors would not be nearly as weak as they would seem to be. The approach should be in stretching of the flexor groups, *maintaining motility of the fingers and wrist and occasionally* electrical stimulation of the extensor group early followed by resistance exercises, as strength returns.

Dr. Sedgwick Mead: Would you advocate splints to minimize flexor overaction?

Dr. Harold Dinken: The plastic splint for the forearm, with the wrist slightly in extension and the fingers in extension, would be of extreme value. It is not so much a problem of weakness of the hemiplegic patient as it is a loss of the ability to carry out the program of movement. Strength returns quickly, and apparently weakness is due to inability to utilize muscle groups that are present or to act against spastic groups which prevent movement.

Dr. Isador Blum, Newark, N. J.: What do you do for shoulder pain?

Dr. Harold Dinken: *That is not a common problem* unless one encounters contracture. In most patients in whom pain is present, it is associated with a flexion and adduction deformity at the shoulder. If pain occurs and is associated with such deformity, the use of dry heat, moist packs or a diathermy cable providing induction heating over the shoulder area, followed by massage and stretching, is helpful. Intractable pain is rare. I have had very few patients who have had pain that could not be relieved by conservative measures. If it is present, there is the problem of organic lesions which involve the thalamus and produce pain which does not respond to any physical measures. Pulley exercises to stretch the contractures about the shoulder joint are of great value.

Dr. George J. Boines, Wilmington, Del.: Do you recommend the use of curare?

Dr. Harold Dinken: I have not used curare, and I do not use neostigmine. I obtain fairly good relaxation by the use of heat where indicated. If one could not get enough relaxation for the program of muscle reeducation and movement reeducation, one would be tempted to try neostigmine. Many have used it and claim good success. I know little about the use *of curare in hemiplegic treatment.*

Dr. John M. Schwartz, Oakmont, Pa.: What has been your experience with galvanic current in flaccid muscles?

Dr. Harold Dinken: It is helpful from the point of view that it will prevent or tend to prevent atrophy, and it will help immeasurably in muscle reeducation. That is the greatest argument for the use of the galvanic current. Manually, one attempts to stimulate that group by stretching and reeducation, but the patient is unable to get through that pathway. If one can secure a good contraction by the use of the interrupted galvanic current, the patient is aware of the muscle group one is working with and frequently can begin movement.

Dr. George J. Boynton: I have used curare in hemiplegia. Curare, or any other such drug, should not be used alone, but in connection with good muscle reeducation, muscle stretching and probably relaxation at the same time.

Dr. Harold Dinken: I think that is important. I am convinced that there is no short cut in retraining the hemiplegic patient. Muscle education is the most important single item in the training program.

SOME BASIC PRINCIPLES AND PROBLEMS OF CLINICAL ALLERGY

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It is not the purpose nor is it possible in this presentation to consider most or even many of the known facts and unsolved problems of clinical allergy. Rather it is my hope to consider briefly some of the more important and more fundamental aspects of the known and the unknown in clinical allergy. In a relatively new and rapidly developing field it is natural that there should be some controversy and honest differences of opinion. It is only with more time and more careful work that such differences can at least partially be resolved. Without going into a philosophic definition of knowledge, I think it necessary to point out that the line of cleavage between the true and the false in clinical medicine is sometimes not as sharp as one would like to have it but that it often seems to consist of different degrees of probability. Pragmatically, this is the same as saying that certain concepts are more workable, more in agreement with generally accepted facts, or that they are less workable, less in agreement with these facts.

It is literally true that everybody is allergic to many things, because each of us is beset every day of his life by threatened invasion with micro-organisms and, in mobilizing body defenses in successfully overcoming such invasions, has developed numerous specifically altered reaction capacities. Such allergies are, on the whole and in general, beneficial to the infected host. But allergy is not always directed toward infecting micro-organisms, nor is it always a beneficial phenomenon. There occur what appear to be aberrations or perversions of this process, so that many of us find ourselves allergic to foods, pollens and other substances which are harmless in themselves but which we, by our overzealous and misdirected defense, render harmful. We make much ado about nothing and then have a problem on our hands. The human organism is marvelously adapted to its environment, but organic evolution is still in progress; perfection has not yet been attained.

It is not known why allergies develop in some persons so much more readily than in others or why the allergy is directed toward certain substances rather than toward others. It is known that some substances are stronger sensitizers than others and that certain substances, such as sodium chloride, dextrose, urea and uric acid, have never been known to sensitize. It is also known that in one common type of allergy, often called atopy, a hereditary predisposition exists. It is not the allergy itself that is inherited but rather the predisposition to become sensitized. So far as is known the allergy always arises as the result of allergenic stimulation. In cases of congenital (or apparently congenital) allergy there is always at least the possibility of allergenic stimulation, either intrauterine or extrauterine. The predisposition appears to be directed toward certain allergens rather than others and also seems to be in existence for limited periods of time. Patients become sensitized to substances to which they are exposed. The route of exposure may be by way of the respiratory tract, the alimentary tract, the skin, parenteral injection or focus of infection.

The resulting hypersensitiveness varies in intensity in different persons and toward different substances in the same person. One patient may be many thousands of times more sensitive than another. A great many allergies are so weak that, under ordinary conditions of exposure, they result in no symptoms whatever. In other cases they are above threshold of clinical symptoms and have to be considered in evaluation of patients' illnesses.

LOCALIZING INFLUENCES

The location of the allergic reaction and the reference site of the symptoms are in general often determined by the route of exposure to the allergen. For example, asthma and rhinitis are usually caused by substances inhaled into the respiratory tract, gastrointestinal symptoms are usually caused by foods taken into the alimentary tract and eczematous dermatitis is usually caused by substances which come into direct external contact with the skin. But while the route of exposure to the eliciting contact is an important determinant of the localization of symptoms, it is by no means the only determinant. Another group of factors plays an important role. The same food eaten by one patient may cause nausea and vomiting; by another, asthma; by a third, urticaria, and by a fourth, headache. These localizing influences are often called the shock organ factor, and, while little is known of their fundamental nature, they are believed to be very important. Sometimes they seem to consist of a local tissue sensitization, as, for example, in the case of the epidermis. Poison ivy extract injected parenterally (in moderate amounts) causes no symptoms, but applied to the cutaneous surface—to the sensitive epidermal cells—results in an eczematous dermatitis. One of the outstanding characteristics of allergy is specificity. A patient may be highly sensitive to one substance and have no demonstrable sensitivity to many other substances. However, one finds many instances of group relationship among allergens, as for example among the fishes, legumes, cereal foods, certain groups of pollens, mammalian danders and serums. There is evidence to support the belief that the allergy, in many such cases, resulted from exposure to one member of the group and that reactions to other members are simply crossed reactions. It is probable that biologically related substances contain common allergenic determinants, and it is also probable that antibodies are not absolutely, but only relatively, specific, that they are capable of reacting not only with the allergen which stimulated their production but also with allergens which are closely related chemically.

URTICARIAL REACTIONS

Allergic reactions of the urticarial type (including asthma and hay fever) seem to be associated with the liberation of a histamine-like substance, but this substance probably bears no relationship to the tuberculin type reaction, the eczematous reaction or other types of allergic reactions. Intracutaneous injection of histamine produces an urticarial wheal, but a patch test with histamine does not produce eczema. In the allergies of the respiratory tract, a great deal of progress has been made in identifying pollens, fungi and numerous perennial inhalants which act as allergenic excitants of these syndromes, but important causes remain to be discovered and some of these are undoubtedly allergens. The nature and biologic origin of the important house dust allergen (or allergens) remain undetermined. Many cases of asthma, rhinitis and conjunctivitis, which closely resemble proved allergic analogues, cannot be satisfactorily explained on the basis of known allergens. Many suspect that allergens are involved in such cases, but they have not been identified in external agents or in bacteria, fungi, viruses and other micro-organisms that reach the respiratory tract. Present concepts of the pathologic physiology of bronchial asthma are based to a considerable extent on indirect evidence and analogy rather than on direct observations. Opinions differ regarding the relative importance of congestion and edema of the bronchial mucosa, muscle contraction and secretions in the bronchi. Among the more important problems awaiting solution are those regarding the fundamental nature of the shock organ factors, the possibility of local specific tissue sensitivities, the relationship between so-called intrinsic and extrinsic asthma and the relationship of infection to this disease.

GASTROINTESTINAL SYMPTOMS

Gastrointestinal symptoms are often due to food idiosyncrasy, but it is not known to what extent this idiosyncrasy is based on a specifically acquired alteration in reactive capacity and to what extent some other mechanism is responsible. In some cases a specific allergy can be demonstrated by cutaneous tests, but reactions are often negative and in these cases one wonders where the true allergen is a partially digested food, whether the allergy is limited to the gastrointestinal tract or whether there is some other explanation. There is need of a good simple efficient method of identifying the foods that affect patients adversely. At present there is no substitute for the rather clumsy method of dietary trial.

ALLERGENIC DERMATITIS

Many different morphologic types of cutaneous disease have an allergic basis. Several distinct entities are recognized. In contact type eczematous dermatitis the hypersensitiveness appears to be chiefly, if not entirely, in the epidermis; the allergens are often relatively simple chemical compounds which, as a rule but not invariably, reach the skin by direct external contact. The patch test is a reliable and valuable diagnostic aid in this disease. In atopic dermatitis, a condition exists which almost certainly has an allergic basis but concerning which opinions differ so widely that discussion is difficult. A majority of allergists believe that foods and to a less extent inhalants play an important role and that the urticarial cutaneous reactions to these substances are often of etiologic significance. A small but possibly important minority is decidedly skeptical of this statement. Recent investigations on an allergen present in the skin are of great interest but as yet unconfirmed. Urticaria is often caused by allergy to foods, drugs, serums, glandular extracts or other biologic products used in the treatment or prevention of disease. In many cases, however, especially of chronic urticaria, no allergenic excitant is identified, and in such cases one wonders whether partially digested foods are the causes or whether allergens may arise in the patient's own body as the result of allergenic modification of his own tissues (with or without infection), and even whether the hypothetic H-substances which mediate urticarial wheals may, in certain circumstances, arise directly without immunologic prerequisite. There are reasons for believing or at least suspecting, that infestations and infections are causes of urticaria, but there is need for more substantial evidence in many cases. These same problems apply, at least to some extent, to angioneurotic edema, allergic purpura, erythema multiforme, erythema nodosum and other morphologic types of dermatoses. Cutaneous manifestations of allergy to bacteria, fungi, viruses and other micro-organisms are of recognized occurrence.

MIGRAINE

In regard to migraine and so-called allergic headache we know that some attacks are precipitated by the ingestion of foods. In such cases, however, an immunologic mechanism usually cannot be demonstrated, although one may exist. The same questions arise here as in the case of gastrointestinal allergy and urticaria. Since cutaneous tests in migraine are often inadequate, one resorts to diet trial. Other methods of identifying offending foods are under investigation.

TESTS AND TREATMENT

Although generalizations tend toward inaccuracy, the following statements may be made regarding cutaneous tests: Scratch tests are equivalent to intracutaneous tests if made with extracts 1,000 to 5,000 times stronger. Such tests are of great diagnostic value in seasonal hay fever. In bronchial asthma and perennial hay fever they are of much diagnostic value. In gastrointestinal allergy and urticaria these tests are sometimes of limited value, while in migraine they are seldom of much help in diagnosis. In contact type eczematous dermatitis patch tests are reliable and of great diagnostic value. Tests in atopic dermatitis are at present under investigation and discussion. It is understood, of course, that all tests must be carefully controlled and results interpreted and correlated with the patient's clinical history.

The treatment of allergic conditions is, theoretically —but not so often practically—simple. Identify the cause and avoid it if possible. If avoidance is not possible, desensitize and relieve symptoms by the use of drugs. I prefer to use the word, hyposensitization, because desensitization is seldom if ever complete in clinical allergy.

COMMENT

In a number of other diseases further investigations based on the concept of allergy seem to be indicated. These include acute rheumatic fever, chronic arthritis, certain cases of nephritis and hepatitis, Loeffler's syndrome, certain blood dyscrasias, periarteritis nodosa, thromboangiitis obliterans and many infectious diseases, their complications and sequelae.

ABSTRACT OF DISCUSSION

DR. C. JIMENEZ-DIAZ, Madrid, Spain: Some allergies, mainly involving pollens, in which the reactions to cutaneous tests and passive transfer are always positive (reagin allergy), do not produce precipitins in the serum, but in others in which the reactions are negative, doubtful or of multiple and variable positivity, in which the reaction to the Prausnitz-Küstner test is negative, there is the more intense content of specific precipitins; this is the case in food allergy. There are, nevertheless, some cases in which one can sometimes obtain positive reactions to cutaneous tests, sometimes precipitin reactions and sometimes both, for instance, in tests with house dust, fungi, vegetable dust, cereals and insects. Experimental and clinical studies have demonstrated that the precipitins that are detectable with the technic of collodion are not the same that appear in the classic procedure. There are two different antibodies, which have been called macroprecipitins and microprecipitins. The specificity of these reactions have been proved. My co-workers and I are routinely employing this new method.

CLIMATOTHERAPY IN ALLERGIC DISEASES

A Clinical Report

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Climatic environment is generally recognized as having an important influence on health. From the increasingly large numbers of patients coming to Arizona for asthma and other diseases, it is evident that the medical profession as well as the public is becoming more climate conscious. There is as yet no definite agreement as to just what produces the improvement when a patient changes his climatic environment. Physical or atmospheric factors usually mentioned as having important influences include temperature, barometric pressure, ion content of the air, altitude, humidity, changeableness of the weather, storminess and sunshine, and difference in foliage. Just how any one or combination of these factors can influence such diseases as bronchial asthma is not readily explainable. Empirically it is true, however, that many sufferers are relieved when they move to the subtropical regions of the Southwest, such as Tucson, Ariz. This report is an analysis made on my clinical observations of 150 unselected patients who came to Arizona for their allergies. Included are the first 100 cases reported by me last year.[1]

When a patient is promptly relieved of asthma or other allergic disease after the change of climate is made, it is probable that he left behind something to which he was allergic. That something may be atopic, as an offending allergen in his physical surroundings, or it may be an environmental factor having a nervous or psychic influence that was the trigger mechanism in exciting the symptoms. Frequently unsatisfactory home conditions, especially in children, are important considerations. In any case the allergic symptoms may be the manifestation of a subconscious rebellion or protest in the life of an allergic person. Patients who have left their families or business worries behind them may do well in their new surroundings, where they can relax and rest and perhaps gain a new perspective on life.

Persons who are susceptible to climatic variations such as storminess, humidity and cold will naturally improve in a calm, dry and warm climate. Tucson has an elevation of 2,400 feet above sea level, an unusually stable barometric pressure, little rainfall, very low average humidity and a high mean temperature with an abundance of sunshine. The foliage of the Southwest is quite different from that of the East and Middle West. While many patients lose their hay fever, some experience hay fever for the first time and others have severer hay fever than they had before coming to Tucson. Because of the nature of the climate the pollen season lasts nine to ten months. Persons sensitive to Bermuda grass especially, as well as to some of the tropical pollens, suffer the most. I have noticed in testing that those allergic to timothy, which does not grow in the Southwest, are not necessarily sensitive to Bermuda grass and vice versa.

Because of the dryness there is much dust, and that causes trouble for many persons. Also, the dryness is conducive to inspissation of mucus and, in some asthmatic persons, is responsible for bronchial "plugging." Bronchial cast formation is frequently encountered, and many patients are forced to leave for a less dry climate. Those with excessive secretions may be greatly relieved. The arid climate is also conducive to dehydration, and in cases of acute disease that condition frequently requires immediate treatment.

Patients with infections of the respiratory tract, as determined by examination of the discharges, and a frank bacterial asthma usually get along well after a sufficient length of time has been allowed for the infection to clear. Too many patients expect a quick cure from some long-standing condition. I have concluded that at least a year should be allowed before an unfavorable opinion can be drawn in any particular case. All patients should be advised to receive the treatment that is usually indicated in their case and not to expect the climate alone to effect a miraculous cure. I have given penicillin by injection and aerosol to over 100 patients with infections of the respiratory tract, and the benefits were frequently maintained in the new climate while recurrences were commoner with the same treatment in an unfavorable climate. Many of the patients with infection of the respiratory tract who did not get along well were those who had extensive surgical treatment of the paranasal sinuses resulting in incurable sinusitis and often bronchitis and bronchiectasis.

In the breakdown of the 150 cases, 101 patients were primarily asthmatic; 32 had allergic rhinitis and sinusitis which was often complicated by secondary infection; and 16 had skin allergy, including eczema, neurodermatitis and urticaria. One patient had migraine with urticaria and perennial rhinitis. Of course, many cases came under more than one category.

Of the entire group, 72 per cent were benefited or relieved by climatotherapy and 28 per cent were not appreciably helped. Of the 101 asthmatic patients, 74 were benefited by an estimated 50 per cent or more amelioration of symptoms to complete relief. Of the 74 who were relieved the improvement could be attributed to the avoidance of psychosomatic influences in at least 32 cases and to improvement of infection of the respiratory tract in 26 cases. Escape from some specific atopic offender or offenders accounted for only 10 cases, and miscellaneous or undetermined causes in 6 cases. In considering these percentages one must bear in mind that most of these patients had received the usual treatment in their home cities without benefit before being advised to try climatotherapy, and the percentages given would greatly differ from a similar number of routine cases in the usual city allergy practice.

In the cases in which the condition was attributable mainly to psychogenic causes I do not mean to imply that sensitivity to various allergens played no part at all. From clinical observations it would seem that the allergic threshold is lowered during periods of emotional strain and that persons sensitive to certain allergens could not tolerate the offenders at such times. But when they were removed from their emotionally disturbing influences they had no symptoms and could then tolerate the previously offending foods or inhalants. Such persons have an underlying inherited allergic constitution which manifests itself during periods of nervous and mental strain or fatigue. Contact with an allergen is not essential. Emotional disturbances, the same as irritating gases or sudden temperature changes, can incite an attack of asthma by stimu-

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Read before the Section on Miscellaneous Topics in the Session on Allergy at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

[1] Schutzbank, F. B.: Read at the Meeting of the American Academy of Allergy, St. Louis, Dec. 17, 1947.

lating the previously established neuromuscular pathways into activity. When the patients are helped by change of climate they are merely getting away from the causes of their nervous or emotional instability. Many persons are potentially "allergic" and, as demonstrated during World War II, experience symptoms only when under strain. This was illustrated by one of my patients who frequently had asthma when the stock market went down and who improved when the market went up.

Of the 27 patients with asthma not helped, 14 had chronic infection of the respiratory tract, such as sinusitis and bronchitis or bronchiectasis, that was not amenable to treatment. The patients who had extensive sinus surgical treatment did poorly as a rule and were the most difficult to treat. Other failures were in part due to complications such as emphysema, bronchiectasis or cardiac disease. Three patients had periarteritis nodosa. Two of these died, and the third was near death at the time of writing. Not included in the series were 8 patients with active pulmonary tuberculosis discovered in routine sputum examinations of asthmatic patients, 2 patients with previously undiagnosed carcinoma of the lung with asthmatic symptoms and 7 patients with cardiac decompensation; all of these patients were sent to Arizona for bronchial asthma.

REPRESENTATIVE CASES

CASE 1.—A woman of 30, married five and one-half years, came to Tucson for intractable asthma of five years' duration. In her home town elimination of foods to which she had had positive reactions, treatment with vaccines, various medicines and diets afforded no relief. After six weeks in Tucson she was symptom free and all treatment was stopped. For the next five months she had no asthma and enjoyed excellent health. Five days after she returned to her home in the East she had to be hospitalized for asthma. On her return to Tucson the condition again cleared up completely for three months. Her husband then decided to move and be with his wife. Five days after his arrival in Tucson I had to hospitalize her in status asthmaticus. On inquiry I learned of their marital difficulties. Subsequently a divorce was obtained, and she now lives in the East and has no asthma.

CASE 2.—A bright little girl of 10 was sent to Arizona for severe asthma and eczema of one year's duration. She was so ill on arrival that she had to be hospitalized. Sent with her were three vials of vaccine, numerous medications, diets and pages of instructions. Two months after entering a private school she was free of all symptoms, taking no medication, eating the general school diet and doing most of her "don'ts," such as playing with animals. In three months she gained 12 pounds (5 Kg.). At vacation time she went home, and in less than a week she had to be hospitalized. On her return to Tucson the condition cleared up rapidly. An investigation revealed that the child's mother had died three years previously; eighteen months later the father had married a widow who also had a 10 year old daughter. The patient did not get along well with her stepmother and stepsister, and after a few months of very unhappy life she began having asthma and eczema. During her second year in Tucson the parents visited her; with the school's permission the girl was allowed to stay with the parents at their hotel. On the second day the child was wheezing. After the parents left the condition cleared up quickly.

CASE 3.—A 12 year old boy lost his asthma even before he reached Arizona. He was symptom free for nine months and then returned home. He had asthma the first night and four days later was so ill that he was sent back to Tucson. Again he was symptom free. Six months later the family moved to Arizona. The furniture followed, and the first night the lad slept in his old bed he had asthma. Investigation proved he was allergic to the horse hair mattress.

CASE 4.—An 11 year old boy was sent south because of perennial rhinitis, sinusitis, bronchitis and asthma. All treatment at home had been ineffective. He was found sensitive to several important foods, which were eliminated from his diet. After a course of penicillin by injection and aerosol the infection cleared, and the improvement was maintained with an autogenous vaccine and vitamin therapy. After six months' freedom from all symptoms he returned to his home in the East. He soon caught a cold, and all of his former trouble returned. After coming back to Tucson he was brought under control again, and for the year and a half prior to writing he had remained in good health.

CASE 5.—A totally disabled man of 60 gave a history of bronchitis and asthma for over twenty years. He was finally given diagnoses of emphysema and bronchiectasis and was sent to Arizona as a last resort. He coughed and wheezed incessantly and smoked about 60 cigarets a day, which he said "loosened the phlegm." After a year in Tucson he was not improved and sought medical aid. Results of cutaneous tests were essentially negative. Very unwillingly he gave up smoking and received a thorough course of penicillin therapy. He was greatly improved in six weeks and after three months was practically free of symptoms. He could walk a mile, while previously he could hardly walk across the room. He went home recently, and I believe that if he does not smoke he will remain in good condition.

CASE 6.—A woman of 67 had asthma for the first time in her life one year before being sent to Arizona. I saw her soon after her arrival; she was orthopneic and cyanotic and was wheezing loudly. Examination revealed that she had pitting edema of the legs, an enlarged liver and pulmonary edema. After treatment with oxygen, digitalization, diuretics and three weeks of rest she was symptom free and returned to her home.

COMMENT

In this series, 11 patients experienced hay fever for the first time in their lives, 8 had severer hay fever than before and 15 who formerly had hay fever had no symptoms of pollinosis in Tucson. The greatest single offending pollen was Bermuda grass, and the season in which it is present is approximately eight months long.

Most of the patients with eczema, urticaria and neurodermatitis improved in Tucson, although patients susceptible to quick changes of temperature may not do well because of the pronounced diurnal variation of temperature. During the winter months there is often as much as 50 degrees or more between the day and the night Fahrenheit readings.

SUMMARY

An analysis is made of 150 patients who came to Tucson, Ariz. for climatotherapy of allergic disorders. Seventy-two per cent were benefited, and 28 per cent were not helped. Of 101 asthmatic persons, 74 were benefited from 50 per cent to complete relief of symptoms. Of the 74 asthmatic persons benefited the improvement could be attributed to their getting away from psychosomatic influences in 32 cases and to improvement of chronic infection of the respiratory tract in 26 cases. Patients with chronic sinusitis and intrinsic bacterial asthma who had had extensive sinus operations did poorly as a rule. Eleven patients experienced hay fever for the first time, and 8 had severer hay fever than they had had before coming to Tucson. Fifteen patients who had formerly had hay fever had no symptoms of pollinosis in Arizona.

CONCLUSION

Climatotherapy is justified in selected cases of allergy only after the patient has been given the benefit of a complete study, including, in addition to a thorough history, examination and skin testing, an investigation of his physical and psychic environment. Psychogenic factors are important causes in exciting allergic manifestations, and if this is kept in mind more patients can be successfully treated at home and fewer will be sent away for climatotherapy. The dry climate with its excessive dust may not agree with some patients. Too many patients are pathetically disillusioned and put to great financial hardship by needlessly being sent away for climatotherapy, because of incomplete allergy studies of their cases. Older patients and those with chronic infection of the respiratory tract are often greatly helped by moving to a warm dry climate. Those aggravated by cold, high humidity, storminess and rain may be benefited by climatotherapy. Persons sensitive to pollen and dust should be carefully considered before they are advised to change to the Southwestern United States for any allergic disorder. When a patient is advised to change his climatic environment he should be told that it may take as long as a year or more to gain the desired improvement and that it is advisable to receive or continue recognized methods of treatment and not to depend on the climate alone to effect a magic cure.

ABSTRACT OF DISCUSSION

Dr. O. E. Egbert, El Paso, Texas: Arid climate has specific influences on some types of allergy, principally allergic rhinitis and bronchial asthma and such complicating conditions as sinusitis, sinobronchitis and bronchiectasis, which, I think, overshadow the psychogenic reactions emphasized by Dr. Schutzbank in patients coming from the East and North to the Southwest. In 1936 I mentioned in a paper on sinobronchitis the instability of mucous membranes that become boggy with edema and secrete large quantities of mucus in the moist climate and that become dry and atrophic in the event the patient moves to an arid climate. The relief from the edematous swelling of the turbinates improves aeration and makes possible adequate drainage from the several sinuses. This drying out of the turbinates may go to a vicious extreme, permitting the air to enter the trachea and the rest of the bronchial tree too dry, too cold and with no filtering of such extraneous matter as dust, molds and pollens. Then there are the patients with intractable asthma that, in the humid, cold climates, have great difficulty with mucus. Rackermann, Cooke and others consider mucus the major problem of intractable asthma. Many persons experience dramatic reverse of their disease when they move to the dry climate. Bronchial mucus is diminished, the edema of the bronchial mucus membranes disappear, mucous plugs and casts are thrown out and great relief comes from improved aeration, whether or not bronchospasm still prevails. Just as a vicious problem can develop from dry atrophic mucous membranes of the upper air passages, the bronchial tree may become too dry and the dry asthma can be a severe and persistent problem. I have seen deaths occur in this group. However, as a rule they are not the emergencies that can arise from the problem of mucus in the moist climates.

Dr. Marion B. Sulzberger: The observations in cases of atopic dermatitis are so similar to those in asthma that one might almost say that this dermatosis is really a sort of asthma of the skin. Given the differences which depend on the structural and functional differences in the organs affected, atopic dermatitis, by and large, acts like asthma. The results in cases of severe intractable disease, that have resisted almost every therapeutic approach for years, are similar in atopic dermatitis and in asthma. When persons with atopic dermatitis are transferred to dry climates, like that of Tucson or El Paso, about 50 per cent of the patients get more than 50 per cent improvement. That type or degree or regularity of improvement from changes to other environments, even though all the psychic changes, emotional factors, are equally changed by such transfers. My statements are based largely on my own experiments in environmental changes. I am inclined to infer that there is something beneficial in the dryness itself, in the almost constantly low relative humidity. Other changes must also play a role, for example, the removal from certain environmental allergens, the taking away of dust and irritants and perhaps, to some degree, the removal of certain emotional tensions. But, in trying to understand why asthma and atopic dermatitis act so similarly in response to climatic changes, it is logical to postulate that the bronchi and the mucous membranes of the lungs and skin should be precisely those organs which are most strongly affected by low relative humidity, because these two are precisely the organs through which the human body gets rid of water by giving it off to the air. All extrarenal water loss is accomplished mainly by the skin and, to a lesser degree, by the surfaces of the lungs through the expired air. Therefore, if there is no gradient between the relative humidity of the environmental air and the cutaneous surface and lung surface, the skin and lungs have difficulty in losing water and their surface tissues tend to become waterlogged. At the New York Skin and Cancer Unit and the New York University-Bellevue Medical Center University Hospital, my colleagues and I have been studying this phenomenon in relation to the skin and its diseases. My co-workers have described a "sweat retention syndrome," which includes alterations of the skin which can well account for some of the itching bouts in cases of atopic dermatitis. While our studies have made progress, it may be that the benefits achieved through environmental and climatic changes cannot be studied properly until one has completely air-conditioned rooms in which not only could one change at will the temperature and relative humidity but one could at will blow in different dusts and change the environmental allergens, irritants and emotional constellations. Only after that would one be able to find out which of these factors is important, how they range in relative importance and just how each can act.

Dr. Leon Unger, Chicago: Dr. Schutzbank gave about as fair a report of the conditions in the Southwest as anybody could possibly do. He was extremely critical of the results, and I think his conclusions were sound. I feel sorry for some of the doctors in the Southwest who get the patients we failed to cure. Some of them should go there, but most of these patients go of their own volition, and as they come to the border of Arizona they expect that their asthma or sinus trouble will disappear. Of course, this is not always true. A number of my patients went to the Southwest last winter, and a few seemed to get better. A good many of them had no results whatever. The trouble with the patients who are sent to the Southwest is that most of them have such complications as severe emphysema, cor pulmonale and/or bronchiectasis, and we in the North cannot expect the doctors in Arizona and Texas to perform miracles. I agree with Dr. Schutzbank about the psychic aspects. Some of the patients are distinctly benefited by getting away from their home environments, from their parents, perhaps, and the rest of the family, and this has been proved, too, in Colorado, where the climate is entirely different from that in Arizona. A great many of the children who are sent to the National Jewish Home for Asthmatic Children in Denver are improved immediately. A strong psychic element is frequently present in their Eastern home environments. One should send those patients who have asthma or rhinitis after infectious "colds" and bronchitis. My colleagues and I are rather well convinced, after thorough study from an allergic point of view, that many of these cases are not due to allergies alone, but are complicated by infections. Those patients should do well in the Southwest. In addition, mild cardiac cases may be benfited by removal to the Southwest.

Dr. Stanley F. Hampton, St. Louis: No doubt many patients with intrinsic asthma of the bacterial allergy type (infective asthma) enjoy better health in the dry climates, such as in the Southwest. It appears to me that persons with intrinsic asthma based on factors other than bacterial sensitivity are among those who fail to obtain benefit from residing in a dry climate. The excellent work of Cavelti and Cavelti in demonstrating autosensitivity in relation to nephritis in lower animals suggests that these cases of probable nonbacterial intrinsic asthma may well be based on autosensitivity of bronchial tissue. It would be reasonable to assume that climate would have no effect on such conditions. Probably the variations in result of climatotherapy in asthmatic persons will not be explained until the true cause of intrinsic asthma apparently not based on bacterial allergy is proved.

Dr. J. A. Rudolph, Miami Beach, Fla.: I should like to commend Dr. Schutzbank for accurately stressing the diagnostic phase of this problem. It is most important that we remember to be doctors first and specialists second, since many patients that visit the doctor before going West have problems other than asthma, and with accurate diagnosis they frequently need not make the trip. My experience also includes many years of practice in the North, and it has been proved to me many times that when a patient desires to go to Arizona, there is little that the physician can exert to alter that desire. I tell that patient to go to see what the change in climate will do. My patients who have gone to Arizona have not been greatly benefited. However, I believe that a certain selected group of patients will get along well in the dry climate, and, as Dr. Egbert stated, it is the excessively mucoid or mucous type, or the moist type, of disease that will respond well. In Southern Florida there are patients with such severe asthma that I call them allergic emergency patients, because most of them present far severer medical problems than those that I have seen in the North, and they no longer require cutaneous tests or ordinary allergic care; they require emergency treatment because so many are in a constant status asthmaticus and the usual treatment is no longer effective. Drugs such as ephedrine, epinephrine and potassium iodide no longer work on these patients, and injections of aminophylline given intravenously no longer give relief. However, as Dr. Rackemann pointed out, one must endeavor to control the asthma and not permit the asthma to be in control. The majority of asthmatic persons who come to Florida do not improve, in my opinion, because of the climate. The humidity in that part of the country at certain times of the year is high; however, if a patient has an excessively atrophic or dry type of mucous membrane, he will often improve in Southern Florida. If the patients are subjected to both general medical and allergy studies, it is my firm conviction that the percentage of patients with intractable asthma who will find it necessary to leave one section of the country for another would decidedly diminish. In addition, one should not neglect the bedside manner in its effect on this group of patients, or, in up-to-date parlance, practicing psychosomatic medicine, for those who remain home. If one can convince such persons that a psychiatrist is of value, the psychiatrist may also assist in further reducing the number of patients who go to the Southwest or the South.

Dr. F. B. Schutzbank, Tucson, Ariz.: It surprised me to hear an allergist say that he does not believe in the existence of or has never seen bronchial plugging. Not long ago a new patient presented himself at my office in dire distress from bronchial asthma. In addition to the usual dose of epinephrine given subcutaneously, he was given 20 cc. of aminophylline intravenously. Apparently the intravenous injection was given a little too rapidly, because it caused some violent vomiting and coughing and the patient brought up a large Y-shaped plug. It was firm and rubbery and could have been sliced. Needless to say, the patient was relieved for the first time in months. I agree with Dr. Egbert that in many cases of intractable asthma the treatment of dehydration is of utmost importance, especially in warm climates. In addition to hydration, one should use adequate doses of iodides to aid in expectoration of the mucus. It has been well brought out that there is no utopian climate for chronic asthma. Some patients with excessive secretions or those whose condition is aggravated by high humidity may get along well in a dry warm climate, while some require a moist climate. In others, climate may play no part at all. A thorough investigation of every patient's sensitivities, as well as a study of the psychosomatic factors, will avoid unnecessary climatotherapy.

CONGENITAL DERMAL SINUSES

As a Cause of Meningitis, Intraspinal Abscess and Intracranial Abscess

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Congenital dermal sinuses are dermal tubes which extend inward from the surface for varying distances and frequently connect the central nervous system or its coverings with the surface of the body. The inner end of the sinus may be expanded to form a dermoid or epidermoid cyst. They are the result of incomplete separation of the epithelial ectoderm from the neuroectoderm at the fourth week of fetal development. On examination, a small dimple or a pinpoint sinus may be found in the midline at any point from the occipital to the sacral regions, inclusive. The dimple or sinus opening may be surrounded by a hair, a pigmented area or a capillary hemangioma. Hair or sebaceous material may project from the small opening at the bottom of the dimple. Often a cordlike structure is palpated, extending inward from the opening. Local superficial or deep infection may be present around the site of the sinus. There is limitation of movement of the spine in the involved area. Spina bifida or grooving of the upper or lower surface of a single spinous process is often present, but the vertebrae may be normal. Through these sinuses bacteria enter and produce infection in the meninges, in the spinal cord and in the brain, as well as in the subcutaneous tissues or erector spinae muscles.

CONGENITAL DERMAL SINUS AS CAUSE OF MENINGITIS AND EPIDURAL AND SUBDURAL ABSCESSES

Historical Review.—Moise[1] in 1926 reported the first case, that of a boy 18 years of age, with meningitis and a discharging sacral sinus which was found to pass through a defect in the sacrum and end blindly beneath the dura. In 1928, Ripley and Thompson[2] described the fatal case of a boy, 3½ months old, with meningitis and a discharging sacrococcygeal sinus which was found to enter the sacral canal through the region of an absent second sacral arch. The sinus communicated with the subarachnoid space. In 1928, Sharpe and Sharpe reported the case of a boy,[3] aged 3 years, who had a draining sinus which extended inward through a defect in the lamina of the eleventh thoracic vertebra and ended between the dura and the left side of the spinal cord in an inflammatory mass of caseous material containing hair. In 1933, Hipsley[4] published the case of a 3 year old girl with a discharging, hair-containing sinus over the first thoracic spine. There was induration about the sinus. It extended through a defect at the base of the bifid second thoracic vertebra and ended subdurally in a dermoid cyst.

Walker and Bucy[5] in 1934 reported 3 cases. The first was of a girl 5 years of age who had had an

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[1] Moise, T. S.: Staphylococcus Meningitis Secondary to a Congenital Sacral Sinus, Surg., Gynec. & Obst. **42**: 394, 1926.

[2] Ripley, W., and Thompson, D. C.: Pilonidal Sinus as a Route of Infection in a Case of Staphylococcus Meningitis, Am. J. Dis. Child. **36**: 785 (Oct.) 1928.

[3] Sharpe, W., and Sharpe, N.: Neurosurgery: Principles, Diagnosis and Treatment, Philadelphia, J. B. Lippincott Company, 1929.

[4] Hipsley, P. L.: Dermoid Cyst of the Spinal Canal, Australian & New Zealand J. Surg. **2**: 421, 1933.

[5] Walker, A. E., and Bucy; P. C.: Congenital Dermal Sinuses: A Source of Spinal Meningeal Infection and Subdural Abscesses, Brain **57**: 401, 1934.

episode of meningitis at the age of 6 months and an intermittently discharging dimple in the upper thoracic region immediately preceding and following that time. The dimple was discovered to be the distal end of a dermal sinus which extended into the spinal canal through a defect in the lamina of the fourth thoracic vertebra, the spinous process of which was missing. The sinus ended above the dura in an inflammatory mass composed of numerous small abscesses which extended through the dura and attached to the dorsal surface of the spinal cord.

The second case was that of a 3½ year old girl who had had meningitis one year previously. There was a red, hairy nevus over the fourth lumbar spine, and a dermal sinus extended from the center of this between the spines of the fourth and fifth lumbar vertebrae through the dura and ended in an abscess in the subarachnoid space. Near the superior end of the abscess, the cavity seemed to sink into a hole in the dorsal surface of the spinal cord.

The third case was of a 3 year old girl with a tender, intermittently discharging, hairy, pigmented area in the midline at the level of the fifth lumbar spine. The opening of the dermal sinus was in the center of the pigmented area. The sinus extended through a defect in the bifid spinous process of the fifth lumbar vertebra and ended in an inflammatory mass beneath the dura.

Stammers[6] in 1938 described 2 cases. The first was of a boy of 2 years with low grade meningitis, secondary to a dermal sinus which extended from the surface of the upper sacral region through a bifid fifth lumber vertebra to communicate with a dermoid cyst in the spinal canal. The second case was of a boy 4 years of age with meningitis and a discharging sacrococcygeal sinus which was attached to the dura.

Boldrey and Elvidge[7] in 1939 reported on a 2½ year old boy with meningitis and epidural and subdural abscesses, secondary to an intermittently discharging dermal sinus which extended from a pigmented area in the lumbosacral region through a bifid fifth lumbar vertebra to end in an infected subdural dermoid cyst.

List[8] in 1941 added the case of a child of 7 with Escherichia coli meningitis, and epidural and subdural abscesses, secondary to a dermal sinus in the lumbosacral region. In 1942, O'Connell[9] published the case of an 18 month old child with meningitis, secondary to a dermal sinus which extended from a small depression in the center of a port-wine stain in the lower lumbar region through a defect in the neural arch of the fourth lumbar vertebra and communicated with a subdural abscess. Waring and Pratt-Thomas[10] in 1945 reported 2 cases. The first was that of a girl 10 years old with recurrent episodes of Staphlococcus aureus meningitis, secondary to a dermal sinus which extended from the surface through a defect in the fifth lumbar vertebra and communicated with an epidural abscess. In the second case, the sinus extended from the center of a pigmented area at the third lumbar vertebra downward to the dura through a defect in the vertebra.

REPORT OF CASES

CASE 1.—The patient was a 2½ year old girl who was admitted to the hospital because of intermittent episodes of stiff neck, tenderness in the lower part of the back, vomiting and fever. Birth was apparently normal, and a small red area in the lumbosacral region was noted at that time. On several occasions, this area had been mounted by a small pustule which disappeared without sequelae and no persistent drainage. There was no fever at these times. She had had several febrile episodes which were thought to be due to tonsillitis. Seven weeks before her admission the patient had a fever (102.6 F.) and vomited, and her mother noticed that the child had pain whenever the lower back was touched. These symptoms disappeared in one week. On the day before her admission, fever developed and again the mother thought the child had tonsillitis. On the morning of admission the child had severe pain when the lower back was touched; swelling appeared in the region under the reddened area, and she dragged the left leg in walking.

Examination showed a well developed and nourished white child with flushed cheeks and hot skin. Her temperature was 102.4 F., pulse 136 and respirations 40. There was a slight mucous discharge from the nose; the tonsils were enlarged and congested. There was a postnasal drip. The left ear drum membrane was injected, but a light reflex was present. There was an indurated, nonfluctuant, very tender swelling in the lumbosacral region which measured 7 by 4 cm. The reddened area was at the apex of the mass, and in the center of this was a sinus, but no material escaped from it. Results of the general physical examination were not remarkable otherwise. Neurologic examination showed stiffness of the neck and the presence of Kernig's sign. The left knee jerk was absent, but both ankle jerks and the right knee jerk were normal. There were no sensory changes. The left lower extremity showed some weakness.

Laboratory studies showed a hemoglobin concentration of 10.8 Gm. (78 per cent), 4,260,000 red blood cells, 14,500 white blood cells, 55 per cent polymorphonuclear leukocytes, 40 per cent lymphocytes, 3 per cent monocytes and 2 per cent eosinophils. Urinalysis revealed a specific gravity of 1.020 and an acid reaction. There were a plus reaction for albumin, no glucose and a few white blood cells.

Course in the Hospital.—An attempted lumbar puncture at the region of the third and fourth lumbar vertebrae above the tender area showed pus in the spinal canal. She was operated on the day after admission, and paravertebral and subdural abscesses were found, incised and drained. An epithelium-lined tube passed downward from the opening on the surface between the incompletely fused lamina of the fifth lumbar and first sacral vertebrae and entered the dura. It was completely removed. Laminectomy of the fourth and fifth lumbar and first sacral vertebrae was performed; the dura was opened, and a subdural abscess which extended more to the left side of the spinal canal was seen. The wound was packed open with penicillin-soaked (1 cc. = 250 units) gauze. A small catheter was placed in the center of the packing, and 5 cc. of penicillin was inserted twice daily. Sulfadiazine and sodium bicarbonate were given by mouth for three days. Twenty thousand units of penicillin was given intramuscularly every three hours for two weeks. Diphtheroids only could be cultured from the abscess. The stiffness of the neck and the Kernig sign disappeared on the second postoperative day. The wound rapidly showed clean, fresh granulation tissue, and a secondary closure was performed on the eleventh postoperative day. The wound healed rapidly after the secondary closure. The strength was normal following the first operation. She was discharged from the hospital sixteen days after the second operation, entirely normal.

Pathologic Report, Microscopic.—The specimen consisted of the wall of a sinus lined on its internal surface by squamous epithelium which was undergoing cornification. Outgrowths of this epithelial lining partially filled the lumen of the cavity. Surrounding the epithelial lining was a mass of coarsely fibrillar, relatively acellular connective tissue. Beyond that there were fat, fibrous tissue and blood vessels. A second specimen consisted of another portion of the sinus which was only partially transected in this zone. Here the subepithelial connective tissue was infiltrated by lymphocytes and plasma cells.

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[6] Stammers, F. A.: Spinal Epidural Suppuration with Special Reference to Ostomyelitis of the Vertebrae, Brit. J. Surg. **26:** 366, 1938.

[7] Boldrey, E. B., and Elvidge, A. R.: Dermoid Cysts of the Vertebral Canal, Ann. Surg. **110:** 273, 1939.

[8] List, C. F.: Intraspinal Epidermoids, Dermoids and Dermal Sinuses, Surg., Gynec. & Obst. **73:** 525, 1941.

[9] O'Connell, J. E. A.: Congenital Dermal Sinus, Proc. Roy. Soc. Med. **35:** 685, 1942.

[10] Waring, J. I., and Pratt-Thomas, H. R.: Congenital Dermal Sinus as a Source of Meningeal Infection, J. Pediat. **27:** 79, 1945.

Comment.—The course of events was entry of organisms into the dermal sinus and subsequent infection, starting, first, inside the sinus and then spreading to form an abscess in the sacrospinalis muscles just posterior to the lamina and another in the subdural space. From the subdural abscess there was some leakage into the subarachnoid space, with the production of meningitis. The episode of fever seven weeks before the patient's admission was probably the result of similar spread, with later walling off of the subdural abscess and recovery from the meningitis.

CASE 2.—The patient was a 2 year old boy whose complaints were draining "sebaceous cyst" of one year's duration, intermittent attacks of meningitis of eight months' duration, difficulty in micturition of three months' duration and weakness in the lower extremities lasting one month.

Examination showed a granulating, draining area in the midline at the fourth lumbar vertebra and stiffness of the lumbar spine, weakness of both lower extremities and hyperactive deep tendon reflexes in the left lower extremity, with the presence of Babinski and Chaddock signs. The right knee kick and hamstring reflexes were normal; the right ankle jerk was absent.

Roentgenograms showed that six lumbar vertebrae and the arches of the fifth and sixth vertebrae were incompletely fused.

At operation the dermal sinus was seen extending from the granulating area between the spinous processes of the fourth and fifth lumbar vertebrae through the dura and ending in an infected epidermoid cyst in the subdural space. The roots of the cauda equina, and perhaps a low-placed spinal cord, were compressed by a subdural abscess which extended from the second lumbar vertebra to the sacrum. The wound was packed open, using china silk and packing saturated with penicillin, 1,000 units per cubic centimeter. The patient was given penicillin intramuscularly. The wound gradually healed. Six months after operation the patient's only residual sign was a slight weakness in dorsiflexion of the right foot.

CONGENITAL DERMAL SINUSES AS A CAUSE OF INTRAMEDULLARY ABSCESS OF THE SPINAL CORD

Historical Review.—Shenkin, Hunt, and Horn[11] published the case of a 22 month old child with a sacrococcygeal dermal sinus in direct continuity with an abnormally patent and dilated filum terminale. The latter was in continuity with the central canal of the spinal cord. An intramedullary abscess of the spinal cord and purulent meningitis developed.

REPORT OF CASES

CASE 3.—The patient was a 10 year old white girl who, seven months before her admission, began to have sharp, knifelike pains in her back, running around the chest under the left breast and sometimes radiating down and anteriorly above the umbilicus. These pains were greatly aggravated by coughing, sneezing, laughing and straining at stool. The pains would last for a few seconds and then disappear abruptly. Analgesics helped considerably. Three months after the onset, the pains were followed by burning and itching in the same areas. At that time also severe pains occurred in the lower extremities, especially in the calves. These leg pains far overshadowed the others in severity and caused the child to scream in agony. They were worse after standing or walking a long time. Massage seemed to relieve the pains to some degree. Five months after the onset, she began to have numbness of the left foot, to drag her feet and to have difficulty in maintaining her balance. One month later she could not walk unaided and on her admission could barely move her toes. For one week she had had frequency and urgency and, for twenty-four hours, incontinence of urine. The parents had observed a small dimple between the scapulas since birth. A year before her admission to the hospital a physician had expressed some caseous material and a few hairs from the sinus.

Examination showed a well developed and nourished white girl in evident distress because of pain in the back and left side of the chest and tenderness of the left breast. Her blood pressure was 110 systolic and 70 diastolic. There was decided tenderness over the spinous process of the fourth thoracic vertebra, and pressure over it produced pain which radiated around the left side of the chest. The patient would not lie on her back because of precipitation of the pain. The opening of a sinus, 1 mm. in diameter, was seen between the spinous processes of the fourth and fifth thoracic vertebrae and two hairs were projecting from it. Beneath the opening a cordlike structure could be palpated passing inward. Clonic movements of both lower extremities, more pronounced on the right, were elicited by touching the legs, knees or feet. There was spasticity of all the muscles of both lower extremities, and the only voluntary movements possible were slight wiggling of the toes. The deep tendon reflexes in both lower extremities were decidedly hyperactive, and a bilateral Babinski reflex was present. There was a sensory level to all modalities at the third thoracic segment bilaterally, with anesthesia below and hyperesthesia above, to and including the first thoracic segment bilaterally.

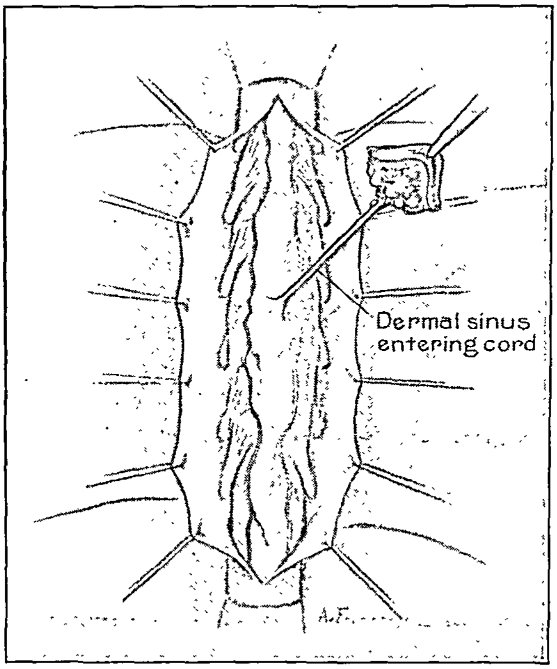

Fig. 1.—As seen at operation, the dermal sinus is shown entering the distended spinal cord.

On laboratory examination, the urine showed white blood cells and bacteria. The blood count revealed a hemoglobin content of 11.9 Gm. (82 per cent); 4,340,000 red blood cells, 7,800 white blood cells, 74 per cent polymorphonuclear leukocytes, 22 per cent lymphocytes, 3 per cent monocytes and 1 per cent eosinophils. Roentgenograms of the thoracic spine showed a congenital irregularity of the lamina of the fifth and sixth thoracic vertebrae, and possibly of the seventh. The pedicle of the fifth thoracic vertebra on the left side was indistinct. This was believed to be due to rotation and motion. The paraspinal soft tissues were not widened.

Course in the Hospital.—The child was admitted and operated on immediately. The dermal sinus was 5 mm. in diameter. Through the opening on the skin surface, hair was protruding and sebaceous material could be expressed. The sinus led down to the dura, passing between the spinous processes and the lamina of the fourth and fifth thoracic vertebrae. The upper portions of the fifth spine and lamina were grooved by the sinus. The sinus led through the dura into the spinal cord At the point where the sinus passed from the dura into the cord, the dura was firmly adherent to the cord. These could not be separated, and, when the sinus was excised, a small portion of the dorsal part of the cord had to be removed. This, however, seemed to represent the wall of an abscess. The abscess was within the spinal cord and contained thick, creamy, yellow pus. It was approximately 1 cm. in diameter and ended blindly anteriorly, superiorly and inferiorly. The spinal cord itself was markedly distended and completely filled the spinal canal. It was enlarged throughout the exposed area from the lower portion of the lamina of the seventh cervical vertebra to the upper portion of the lamina of the seventh thoracic vertebra. It was enlarged above and below this area, but there was sufficient decompression performed so that the spinal cord did not fill the canal at the upper and lower portions of the wound. The subarachnoid space was completely obliterated from the second to the sixth thoracic vertebrae by the enormous distention of the cord; hence the subarachnoid space was not entered. Both penicillin, 1,000 units per cubic centimeter, and sulfadiazine powder were used in the wound after the evacuation of the pus, and the dura was left open. Penicillin, 20,000 units, was given intramuscularly every four hours for the first six postoperative days. On the first day, 15,000 units of penicillin was given intrathecally in 10 cc. of distilled water; 2.5 Gm. of sodium sulfadiazine was given intravenously daily for the first three days. Sulfadiazine was then given by mouth until the seventeenth postoperative day. E. coli was cultured from the abscess.

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[11] Shenkin, H. A.; Hunt, A. D., Jr., and Horn, R. C., Jr.: Sacrococcygeal Sinus (Pilonidal Sinus) in Direct Continuity with the Central Canal of the Spinal Cord, Surg., Gynec. & Obst. 79: 655, 1944.

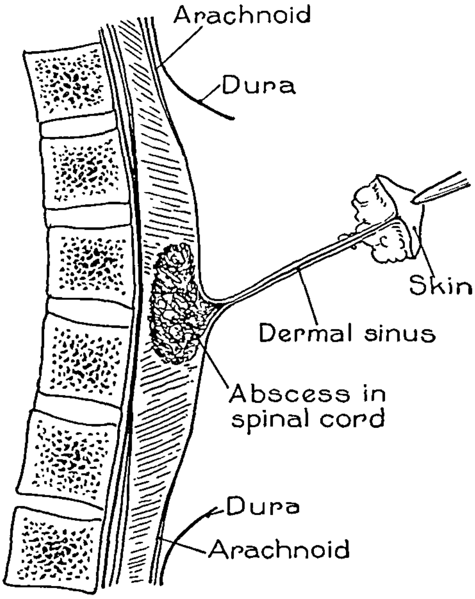

Fig. 2.—A sagittal section showing the dermal sinus leading from the skin into the abscess within the spinal cord.

The patient's postoperative course was febrile but a urinary tract infection developed. The operative wound healed by primary intention. She was allowed out of bed on the twelfth postoperative day and was discharged from the hospital on the thirty-eighth postoperative day. She was then completely free of pain. She was able to walk with slight assistance and had regained effective bladder and bowel control. When last seen, 21 months after operation, she had no pain. She had normal bladder and bowel function. She had only slight unsteadiness in walking and could run and ride a bicycle. There was a kyphosis in the upper thoracic region. Strength was normal. The heel to knee test was well performed. Muscle tone and the deep tendon reflexes were slightly increased in the lower extremities. The Babinski and Chaddock reflexes were present on the right and equivocal on the left. Pain, temperature, touch and position sense was normal. Vibration was absent below the third lumbar vertebra.

Pathologic Examination.—There was a tube of squamous epithelium actively desquamating, which lined the wall of a cavity. Beneath this epidermal lining was a layer of dense connective tissue representing the dermis, in which hair follicles and sudoriferous glands were observed. Directly beneath this epidermis was a mild infiltration by lymphocytes with a proliferation of fibroblasts and capillaries in some areas. One of these masses of granulation tissue included a multinucleated giant cell. Among the fibroblasts were some cells which resembled epithelioid cells. The remainder of the dermis and subcutaneous tissue showed no unusual features except occasional foci of lymphocytic infiltration with rare polymorphonuclear leukocytes and some plasma cells. A series of additional sections revealed some psammoma bodies in the dense connective tissue beneath the dermis. This would indicate meningitis associated with the sinus.

Comment.—The result was remarkable, considering the presence of an E. coli abscess within the spinal cord. The operator had anticipated serious residual disturbances, at least in position sense and vibration. The extreme distention of the cord with the obliteration of the subarachnoid space prevented the development of meningitis. The abscess developed within the spinal cord without any purulent drainage from the external opening of the sinus.

CONGENITAL DERMAL SINUSES AS A CAUSE OF INTRACRANIAL ABSCESS

Historical Review.—No previous cases have been reported.

REPORT OF CASES

Case 4.—This patient was a 1 year old white girl who was admitted after three previous hospitalizations. On her first admission, at the age of 1 month, the patient had hemolytic Staph. aureus meningitis and acute otitis media on the left. A soft tissue swelling, 1 cm. in diameter, with a dimple at the apex was observed in the region of the right external occipital protuberance, but no opening was found in the dimple and no defect was seen on the roentgenogram. The patient recovered following administration of sulfadiazine by mouth and penicillin intramuscularly and intrathecally. Bilateral mastoidectomies were performed, but no evidence of infection was found. At 9 months of age she was admitted for treatment of acute bronchitis. At 10 months the area in the back of the head became tender and pus drained through an opening in the dimple. At 11 months she was again admitted because of acute, purulent otitis media, bilateral. At 12 months she had a fever (103 F.), draining left ear, vomiting, cough and running nose, but she improved when a myringotomy was performed. A few days later the right ear flared up and was opened also. She was readmitted for treatment of otitis media and adenoidectomy. The elevation in temperature subsided with administration of sulfadiazine by mouth and penicillin intramuscularly. Three days later the adenoidectomy was performed. Penicillin was continued and the temperature remained down, but the child became irritable, cried whenever the head was touched and seemed to prefer lying on the right side with the neck hyperextended. Seven days after the adenoidectomy, a lumbar puncture was performed, but the pressure was not recorded. The fluid contained 5 white cells and 45 mg. of sugar per hundred cubic centimeters, and the culture was negative. Eleven days after the adenoidectomy, the patient became extremely lethargic, vomited four times and showed definite opisthotonos. There was no rise in temperature.

Examination showed an acutely ill baby. She moved all extremities well when stimulated and reacted to painful stimuli equally well bilaterally. The deep tendon reflexes were moderately hyperactive. The pupils had been dilated with atropine and did not react to light. There was no papilledema. When turned on her side, opisthotonos was present. The anterior fontanel was bulging and tense. A dimple was observed in the region of the external occipital protuberance, and a cordlike structure was palpable beneath the scalp, leading from the dimple into the bone. Roentgenograms of the skull showed an oval defect in the midline in the occipital bone about 2 cm.

below the external occipital protuberance. A preoperative diagnosis of congenital dermal sinus with secondary cerebellar abscess was made.

A ventriculogram showed both lateral and third ventricles to be markedly dilated, but not displaced. The aqueduct was cut off at its midportion and was displaced forward. A midline incision was made in the suboccipital region and the sinus was followed inward where it entered the bone at the external occipital protuberance. It then passed downward for 1 cm. between the inner and outer tables of bone before it passed through the inner table. It then entered the center of a rounded elevation of dura 2 by 1.5 cm. It was at this point that the defect in the bone showed in the roentgenogram. There remained only a thin shell of the outer table over this elevation. The bone was removed down to the foramen magnum and the dura was opened but the arachnoid was left intact. It was found that the sinus ended in an infected dermoid cyst, measuring 3 by 2 by 2 cm. and containing hair, pus and caseous material. Leading anteriorly from this was a midline cerebellar abscess which measured 5 by 3 by 3 cm.. The cyst was completely removed; the abscess was drained; the cavity was filled with penicillin (1 cc. = 500 units). A small catheter was left in the abscess cavity, and the wound was sutured, leaving an opening around the catheter for drainage.

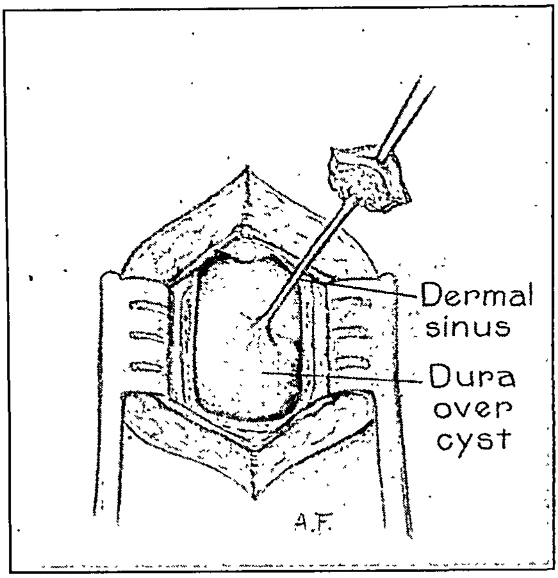

Fig. 3.—The dermal sinus is shown entering the dura in the posterior fossa.

The patient stood the operative procedure well. Penicillin was given intramuscularly and was also instilled into the abscess cavity via the catheter. There was clear drainage on dressing (penicillin). The postoperative course was satisfactory until the morning of the third day, when the patient was found dead.

Permission for an autopsy of the head only could be obtained, and this did not reveal the cause of death. There was no evidence of herniation of the cerebellar tonsils, no meningitis and no pus was present within the abscess cavity.

The microscopic sections showed a sinus tract lined with squamous epithelium, which was actively desquamating. In the dense connective tissue beneath this there were hair follicles and sebaceous glands. In one area, granulation tissue containing a great many large multinucleated giant cells, polymorphonuclear leukocytes and lymphocytes surrounded a portion of the tract.

Comment.—This case demonstrates the possibility of a congenital dermal sinus acting as a passageway for infection to enter the cranial cavity, form an abscess and spread to the subarachnoid space with the production of meningitis. The absence of a demonstrable defect in the occipital bone in the roentgenogram wrongly prevented the diagnosis of a congenital dermal sinus as the source of the meningitis at the age of 1 month. As the sinus penetrated the bone obliquely it was not seen in the roentgenogram. The defect seen roentgenologically on her last admission was a very thin area in the bone over the dermoid cyst and the abscess.

CASE 5.—This female baby of 4 months had a small dimple in the midline about 3 cm. above the external occipital protuberance. A mass was noted beneath this at the age of 2 weeks. This mass gradually increased in size and was firm and tender. Just before her admission the mass opened and drained purulent material.

Examination showed a mass 3 cm. in diameter and 1 cm. in height. It was tender and slightly red, had increased local heat and was fluctuant in the center. There was induration about the mass. Results of neurologic examination were normal.

Roentgenograms showed a rounded defect in the midline in the occipital bone about 2 cm. above the external occipital protuberance.

The clinical impression was that of an infected congenital dermal sinus. Because of the inflammation of the scalp around the mass, the latter was opened and hair, sebaceous material and pus were found. The wound was packed open. Culture showed Staph. aureus. About one month later the remaining small granulating area was isolated, and a dermal tube was observed beneath it extending through the occipital bone inferiorly between the bone and the torcular Herophili. The sinus then broadened into a pear-shaped mass, 3 cm. in its greatest diameter. This mass extended anteriorly between the leaves of the dura beneath the straight sinus. At its most anterior inferior portion it penetrated the tentorium and exposed the cerebellum. This mass also contained hair and sebacious material. It was completely removed and the wound closed. A small amount of thin, seropurulent drainage appeared on the dressing on the fourth postoperative day. This continued to appear for three weeks after the operation.

The specimen showed squamous epithelium which varied considerably in thickness. There were numerous hair follicles beneath the squamous layer and sudoriferous glands in the connective tissue, as well as varying degrees of infiltration by lymphocytes, eosinophils and plasma cells.

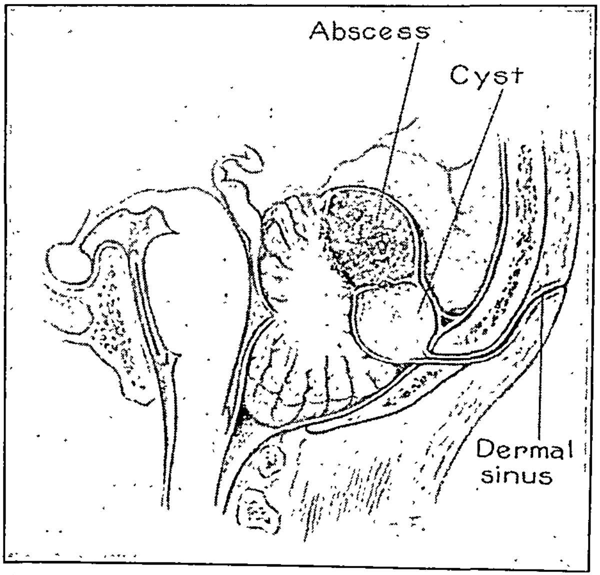

Fig. 4.—A sagittal section showing the sinus leading from the skin into a dermoid cyst in the posterior fossa and the cyst, in turn, connecting with a cerebellar abscess.

Comment.—In this case the dermal sinus was expanded to form a dermoid cyst subcutaneously and intracranially in the posterior fossa. The infection in the superficial dermoid cyst had not yet spread to the cerebellum.

COMMENT

Bacteria may enter the central nervous system by way of a congenital dermal sinus located at any point from the occipital region to the coccygeal region. As a result, meningitis, subdural abscess, intramedullary spinal cord abscess or brain abscess may occur. In addition, subcutaneous, paraspinal or epidural abscesses may be present.

Including the 5 cases just reported, there are now 19 published cases of infection of the central nervous system secondary to a congenital dermal sinus. In the great majority the infection occurred under the age of 5 years, but there was 1 patient who was 18. The results of surgical therapy are very favorable, 84 per cent having recovered with relatively little or no residuals.

With earlier recognition the results will be even better, and, if possible, the sinus should be excised before infection occurs.

In addition to the dermal sinuses resulting in infection in the central nervous system, 3 other cases have been reported. Ottonello[12] published the case of a girl, 20 years old, with a thoracic dermal sinus at the bottom of which was a dermoid that lay beneath the arachnoid and produced spinal cord compression. List[8] and Kooistra[13] reported the case of a boy of 19 with a dermal sinus in the thoracic region and evidence of spinal cord compression. This sinus ended in an intramedullary dermoid cyst in the thoracic cord. Maxwell and Bucy[14] described a child of 9 months with a congenital dermal sinus associated with diastematomyelia at the third lumbar vertebra. The dermal sinus was attached at the intersection of each caudal dura mater.

CONCLUSION

A careful search for a congenital dermal sinus should be made in any patient having pyogenic meningitis, evidence of rapid spinal cord compression or evidence of a rapidly expanding intracranial mass.

ABSTRACT OF DISCUSSION

Dr. Paul C. Bucy, Chicago: Dr. Mount's paper is an extremely thorough presentation of this problem. Since 1934, when Dr. Walker and I reported our first cases, I have been interested in this condition mainly as a prophylactic problem. I have seen few cases in which infection developed. It is of great importance that these sinuses be recognized as a potential source of infection of the meninges and of the central nervous system which may result in a permanent paraplegia. It is also of great importance that we recognize, as Dr. Mount pointed out, that this trouble begins early in life. Most of these children are under 5 years of age when the infection develops so that preventive therapy must be started early. It perhaps is even more important that we bring this matter to the attention of the pediatricians than that we recognize it ourselves. Such an anomaly is seen by the pediatrician and is often passed off as being an unimportant dimple. The presence of such a dimple in the midline of the back overlying the spine is indication for its removal. In removing these lesions, the point at which the tube penetrates the dura mater, and it often does, *is important. Extirpation should continue subdurally because often there is an epidermoid or dermoid cyst within the dural* sac. If the tube is cut off flush with the dura mater externally and this sac is left behind, even though no infection develops, the patient may subsequently suffer from an intraspinal epidermoid cyst.

Dr. A. Earl Walker, Baltimore: I have seen probably 6 or 8 congenital dermal sinuses in infants who had no evidence of infection of the nervous system. Removal of the sinus at that time is usually a simple matter. Some of the sinuses do not extend down to the dura mater; some are superficial and go only to the soft tissues. Others, as has been emphasized, penetrate the dura mater. It is particularly important that these cases be recognized because when the sinus becomes infected the condition may be diagnosed as tuberculous meningitis and treated as such, in some cases disastrously. If the condition is *kept in mind, the diagnosis is easy, the treatment simple and* the prognosis excellent.

Special Article

PRIMER ON THE RHEUMATIC DISEASES

PREPARED BY A COMMITTEE OF THE AMERICAN RHEUMATISM ASSOCIATION

(Concluded from page 1146)

GOUT AND GOUTY ARTHRITIS

Gout is a metabolic disease of unknown causation characterized by (1) acute attacks of arthritis with freedom of joint symptoms between attacks except in a minority of patients in whom chronic deforming changes develop; (2) increased concentration of uric acid in serum and other body fluids; (3) eventual deposition of sodium urate crystals in articular, periarticular and subcutaneous tissues, sometimes also in the urinary tract, and (4) degenerative changes, particularly in the vessels of the kidneys, heart and brain, in many patients who have had the disease for years.

More than 90 per cent of gouty patients are males, usually more than 30 years of age. The disease is distributed diffusely among races, nationalities and social levels. Although an excessive intake of purine substances or alcohol may provoke an attack of gouty arthritis in those who are afflicted with the underlying metabolic disturbance, purines and alcohol do not cause the disease. Other factors which may precipitate an acute attack of arthritis include surgical operations, dietary indiscretion, emotional stress, crude liver extract, thiamine, dehydrocholic acid and mercurial diuretics.

DESCRIPTION OF AN ACUTE ATTACK OF GOUTY ARTHRITIS

Most patients are not aware of any prodromes of an acute attack; others notice one or more nonspecific symptoms. The first articular symptoms may occur at any hour of the day or night. Within a few hours the affected joint or joints usually become red, warm, swollen and exquisitely tender to touch and acutely painful when moved. Weight bearing is impossible in the more severe attacks which affect the lower extremities. A moderate fever, leukocytosis and an increased sedimentation rate may be present. The metatarsalphalangeal joint of the great toe is affected in about 50 per cent of the patients, but other toes or joints of the feet, ankles, knees, hands, wrists or elbows may be involved. The arthritis may be monoarticular or migratory and polyarticular. Joint effusion or acute bursitis not uncommonly is associated with the synovitis. If the attack is not treated specifically, severe symptoms may last for several days or even weeks; if proper treatment is instituted, symptoms usually subside rapidly. After the acute attack the joint is essentially unchanged from its condition prior to the attack.

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[12] Ottonello, P.: Contributo alla conoscenza della syndrome rare da tumori embriogenetici; dermoide spinale associato a rachischisi; decorso atipico; efficace intervento chirurgico, Riv. di pat. nerv. **41**: 512, 1933.

[13] Kooistra, H. P.: Pilonidal Sinuses Occurring Over the Higher Spinal Segments with Report of a Case Involving the Spinal Cord, Surgery **11**: 63, 1942.

[14] Maxwell, H. P., and Bucy, P. C.: Diastematomyelia: Report of a Clinical Case, J. Neuropath. & Exper. Neurol. **5**: 165, 1946.

DIAGNOSIS

Family History.—A family history of gout may point the way to a correct diagnosis.

Clinical Findings.—Recurring attacks of acute joint pain as noted, with completely asymptomatic intervals, are seen infrequently in adults except in gout.

Serum Uric Acid.—An increase in the content of urates in serum is a characteristic finding in gout. The level in the serum usually is above 6 mg. and in whole blood above 4 mg. per hundred cubic centimeters. Some laboratories have considerable difficulty with uric acid determinations and in such instances a diagnosis of gout may be made in certain patients irrespective of the uric acid level. Nongouty conditions which may be associated with an increase in serum uric acid include renal insufficiency, leukemia, polycythemia vera, pernicious anemia and certain infections.

Tophi containing sodium urate crystals are found only in gout. They occur most often about the margin of the ears and less often in the olecranon region and around joints of the hands and feet. If a tophus is suspected, its contents should be removed and examined microscopically for needle-like crystals or chemically by means of the murexide test.

Roentgenologic Examination.—During the earlier stages or years of the disease the joints may appear normal by roentgen ray. As attacks recur osseous tophi are observed as punched-out areas in the bones of the fingers and toes especially.

Therapeutic Test.—Colchicine, if given promptly and in sufficient doses, will usually relieve the acute manifestations of gouty arthritis in a remarkable manner. Other forms of arthritis are unaffected by colchicine.

TREATMENT

Acute Attack.—Colchicine is specific for acute attacks. It is preferable to the wine or tincture of colchicum. One 0.5 mg. tablet (grain $\frac{1}{120}$) should be taken every hour until the onset, in severe attacks, of gastrointestinal symptoms (nausea, vomiting or diarrhea) or, in mild attacks, until pain is relieved. If gastrointestinal symptoms develop, tincture of camphorated opium, 5 cc. (1 drachm), should be given as needed. Acetylsalicylic acid, 4 to 6 Gm. (grains 60 to 90) may be prescribed daily during the acute attack. There should be a liberal intake of fluids with a diet as noted in the next section.

Between Attacks.—The diet should be balanced in regard to content of protein, carbohydrate and fat. Substances high in purines such as liver, kidney, brains, sweetbreads and anchovies and sardines should be avoided. Other foods which contain appreciable quantities of purine bodies and should be eaten sparingly include bacon, beef, tongue, codfish, duck, goose, game birds, halibut, lamb, meat soups, perch, pike, rabbit, shellfish, squab, trout, turkey, veal and venison. If the patient is overweight, a reduction in calories is indicated. Supplementary vitamins and minerals are of no value in the absence of a specific deficiency in them. There should be an abundance of fluids taken during the day to aid in the excretion of uric acid. Benefit has been claimed by some physicians for a few colchicine tablets each week as well as acetylsalicylic acid intermittently. There should be no objection to the use of either one. If there is a tendency for urates to precipitate in the urine, sodium bicarbonate, 1.3 to 3 Gm. (grains 20 to 45) three times a day, is of value. Exercise should not be restricted providing it does not put undue strain upon an involved joint. Surgical intervention is sometimes indicated for removal of subcutaneous tophi and for other corrective measures.

NONARTICULAR RHEUMATISM

Many persons who suffer from rheumatism do not have disease of the joints but are afflicted with one or another form of a large variety of illnesses collectively called nonarticular rheumatism. Some of these afflictions are poorly defined clinically and pathologically, so that there is lack of agreement concerning their terminology and significance. There is no disagreement, however, concerning the prevalence of this group of rheumatic ailments and the importance of differentiating them from arthritis. In the United States the average incidence of this group of diseases among patients in arthritis clinics is approximately 30 per cent; in Great Britain it is even greater.

Among the nonarticular rheumatic diseases should not be included the many febrile illnesses, particularly infectious diseases of specific causation, which in prodromal or early stages are frequently accompanied by rheumatic symptoms which may constitute the patient's chief complaint. As these ailments progress, their nature becomes evident so that differentiation from primarily rheumatic diseases is usually not difficult. Also it should be emphasized that varying degrees of nonarticular fibrous tissue abnormalities are usually associated with different forms of arthritis; this secondary fibrositis contributes significantly to the patient's discomfort and disability. It is important, however, to appreciate that there are many forms of nonarticular rheumatism which occur entirely independently—primary nonarticular rheumatic diseases. This group of ailments includes:

Fibrositis, generalized
Fibrositis, localized
Lumbago
Painful stiff neck
Bursitis
Periarthritis (para-arthritis)
Tendonitis ("tendon attachment syndrome")
Tenosynovitis
Fasciitis
Panniculitis
Herniated subcutaneous fat
"Shoulder-hand syndrome"
"Psychogenic rheumatism" (*rheumatic manifestations of psychoneurosis*)

FIBROSITIS

There is a clinically distinct pattern of rheumatism which affects primarily the nonarticular fibrous tissue, called variously fibrositis, myofibrositis, muscular rheumatism, myositis, etc. None of these terms is entirely suitable; "fibrositis" has become more generally used. Although this name indicates a fibrous tissue disease, it is objected to because there has been no substantiation that this is truly an inflammation as the suffix implies.

Primary fibrositis may be rather generalized or sharply localized. The more disseminated form of the illness involves the fascia, tendons and aponeuroses particularly in the back, shoulders, thighs and hands, although all other fibrous tissue may be prominently affected. Localized forms of fibrositis frequently appear as bursitis, tenosynovitis and regional fasciitis.

Causation.—The cause is unknown. The same uncertainties surround the nature of this rheumatic disease as exist for rheumatoid arthritis. In some instances acute infections, trauma, unusual physical activity, fatigue and exposure to dampness and cold appear to be contributory causes. In the majority of cases even these factors cannot be incriminated; the illness seems to originate "out of a clear sky." Inherited fibrous tissue characteristics may prove to be of etiologic importance.

Pathologic Features.—These have not been clearly defined. Histologic studies have been reported variously to show exudation in the connective tissue, small infiltrations of round cells, tender fibrous tissue nodules and mild degenerative changes in white fibrous fibers and muscles. No consistent changes are agreed on by students of this disease, many of whom consider that this illness is not one of characteristic cellular inflammation, but that the pathologic changes are chiefly chemical, chemicophysical or an enzymatic disturbance which alters the physiology of the tissues involved.

Clinical Features.—The clinical pattern of fibrositis is rather consistent. Affected persons are usually young or middle-aged adults. The illness may begin acutely with a severely painful stiff neck or lower part of the back requiring bed rest. When so acute, the illness usually subsides within seven to fourteen days. More commonly the onset is insidious. Aching and stiffness of the neck and shoulders, lower part of the back or the entire back are common early symptoms. The posterior structures of the shoulder girdle, the interscapular region, the upper parts of the thighs, especially about the femoral trochanters, are frequent sites of symptoms. Turning, stooping and twisting motions of the spine, abduction and rotation at the shoulders and lying on the side are difficult to do and aggravate the symptoms. Often the hands become stiff; movement of the fingers is difficult and clumsy, and grasp becomes weak so that objects are dropped and work with the hands becomes difficult or impossible.

Symptoms and dysfunction usually are worse after rest; therefore they are maximal on arising. Exercise of the affected parts usually limbers and relieves the aching. Patients feel best after midday until evening when stiffness and pain are usually worse. Stiffness resulting from rest and cool environment is often referred to as "jelling" of the muscles and fibrous tissue. Dampness, cold, rain and snow usually worsen; warmth, dryness and summer season normally relieve.

Symptoms usually fluctuate and even disappear and recur. The illness usually continues for long periods, but seldom is it sufficiently severe to incapacitate the patient; it is more of a "nuisance" disease. Always the systemic health is good. Fever, loss of weight and muscle atrophy do not occur. The joints do not show changes. Stiffness limits motions, and the affected parts may be tender. Almond-sized, tender nodules are sometimes felt in the lumbosacral region.

Laboratory Observations.—Results of laboratory tests are usually normal. There is no anemia or leukocytosis; erythrocyte sedimentation rate is normal or only slightly elevated; roentgenograms do not show changes in cartilages or bones.

Diagnosis.—This is based on the characteristic clinical history, absence of pathologic joint changes, normal systemic health and negative laboratory findings. Differentiation from early rheumatoid arthritis, mild osteoarthritis especially of the spine and psychogenic rheumatism is the chief diagnostic problem. Often the possibility of early rheumatoid arthritis or degenerative joint disease can be excluded only after careful observation of the patient for some time.

Prognosis.—The outlook is relatively good. Crippling and deformities never result. The disease usually subsides or is controlled by treatment, although there are some stubborn cases. Patients should be informed that they have only a "nuisance" illness rather than a crippling disease, for they usually fear that they have arthritis and are greatly relieved to learn that their disease is relatively mild.

Treatment.—Treatment of fibrositis is supportive and symptomatic. Avoidance of strenuous physical activity and procurement of additional daytime rest are wise, but it is a mistake to avoid ordinary activity and moderate recreation is often advantageous. Mild exercise usually greatly aids limbering up and relieves stiffness and aching, whereas prolonged or severe exercise usually increases discomfort. Heat often relieves; massage which gradually is made rather firm is usually helpful, and planned exercise done after application of heat commonly relieve stiffness and aching. Hot packs are usually helpful for acutely painful episodes. Analgesia is usually accomplished by use of acetylsalicylic acid or its derivatives. Procaine injected into "trigger points" of pain may break the reflex and afford relief for varying lengths of time. Antispasmodic drugs (d-tubocurarine, tolserol® [3-ortho-toloxy-1,2-propanediol]) have been reported to have varying success. Roentgen therapy is usually disappointing. "Fibrositic vaccines" are fast losing popularity because they are rather ineffective. Vitamin E has been reported to be beneficial, but trial has been disappointing to most investigators. Avoidance of dampness and cold usually lessens the symptoms; some patients are relieved in a warm, dry climate.

LOCALIZED AND SPECIAL FORMS OF FIBROSITIS

Fibrous tissue irritation or inflammation may be rather localized. Symptoms and disorders of function depend on the anatomic localization. Good examples are the acute, painful stiff neck and "lumbago." Each of these painful conditions depends on irritation of the muscle sheaths, fascia, tendons and ligaments in the back. Muscle spasm is often severe. Hot fomentations and injections of procaine into the center of the irritation are apt to effect prompt relief. Antispasmodic drugs have more value in this form of fibrositis with acute muscle spasm.

Bursitis and Tendonitis.—Inflammation of a bursa is a common form of localized fibrositis. It may be caused by trauma, unusual use of the part or infection, or the cause may be unknown. Any bursae about joints may be inflamed. Commonly affected are the subacromial, olecranon, ischial, prepatellar and achilles bursae. One of the most difficult problems is fibrositis about the shoulder, which is much more frequent than arthritis of the shoulder joints and often begins with subacromial bursitis. This may begin precipitously or insidiously and may be acute or chronic.

Acute Subacromial Bursitis: Acute subacromial bursitis may be mild or severe. It is characterized by pain and tenderness usually localized to the subacromial region, made worse by allowing the arm to hang unsupported, by pressure over the tip of the shoulder or by movement of the shoulder in abduction and rotation. Sometimes these motions are markedly restricted by severe pain. Fluid may accumulate in the bursal sac, causing additional pain from the distention. This fluid may contain calcium salt in semisolid consistency.

It is often difficult to determine whether subacromial bursitis or irritation of the supraspinatus tendon is responsible for symptoms because of the proximity of these two structures. Irritation of one may secondarily affect the other adjacent structure, so that both become a source of pain. Calcification in the tendon near its attachment is common, and sometimes this may rupture into the bursa. Abnormal bursal or tendinous calcium may be absorbed or it may become firm and add to the irritation of adjacent structures.

Diagnosis is usually not difficult because of the distinct clinical pattern; it is often aided by roentgenographic evidence of soft tissue calcium deposits. The shoulder joints always appear normal in the roentgenograms.

Treatment should be directed to relieving the pain, maintaining function and reassuring the patient as to the relatively mild nature of the disease. Local application of radiant heat or diathermy may relieve, but often aggravates pain, in which case cold usually relieves. Rest during the more acute phase followed by graded exercises to restore motion is helpful. Withdrawal of exudate from a distended bursa promptly relieves. Local roentgen therapy helps in some cases, especially in the subacute stage. Local procaine infiltration or brachial plexus or superior cervical ganglion block will usually give temporary relief, which in addition to providing analgesia will allow exercises to maintain motion at the affected shoulder. If calcification is firm and adhesions restrict motion, excision of the calcific mass and liberation of the shoulder may be required.

With proper care promptly provided, acute bursitis can usually be arrested or controlled. If it becomes chronic, periarticular fibrositis may result and enhance the shoulder disability. (Periarthritis at the shoulder may also begin without apparent initial bursitis.) If stiffness of the shoulder persists, muscles atrophy and motion becomes so limited that a "frozen shoulder" may result. Careful manipulation with the patient under anesthesia may be required to regain motion.

Bursitis in other locations presents similar problems, the anatomic localization accounting for the differences in the clinical picture and therapeutic considerations. Tendons may become inflamed, although more often they are painful without evidence of inflammation, accounting for the symptom complex known as "tendon attachment pain." This may result from trauma or from unusual use, with or without regional bursitis. This is a common difficulty at the attachment of the conjoined tendon onto the humeral epicondyle—known as "tennis elbow." Treatment is similar to that for bursitis.

Tenosynovitis.—Tendon sheaths may become inflamed. Specific infection such as tuberculosis may be the etiologic factor, but more often the cause is unknown. Sometimes nodular or stenosing changes (De Quervan's) result impeding motion of the encased tendon. When this condition affects flexor tendon sheaths of a finger, extension may not be possible after the finger is flexed and "trigger finger" results. If warm baths or paraffin dips and exercise do not relieve, incision of the tendon sheath may be required to free the motion of the finger.

Fasciitis and Panniculitis.—Palmar fasciitis may result in adhesion and contracture limiting the extension of fingers. Contracture of the flexor tendons of the fingers may occur, especially in the fourth and fifth digits, producing "Dupytren's contracture."

The subcutaneous fascia may become inflamed with or without the fat components of subcutaneous tissue. This may be nodular in character and occur over the abdomen, shoulders and thighs, giving rise to the painful syndrome usually called panniculitis.

Pain in the back, referred along the appropriate segmental nerve distribution, may simulate fibrositis and be caused by herniation of subcutaneous fat through a weak portion of the fascia or a small foramen, a condition recently described as "herniated fat." Local injection of procaine hydrochloride may relieve temporarily; excision may be needed for permanent relief.

Shoulder-Hand Syndrome.—This interesting and incompletely understood form of nonarticular rheumatism may follow myocardial infarction or painful intrathoracic lesions, vascular accidents, trauma or other irritative lesions about the neck or upper extremity and sometimes without known cause. It is characterized by pain in the shoulder or hand, commonly in both parts; it may be unilateral or bilateral. Shoulder motion is limited by pain; the affected hand becomes edematous and painful so that it is held stiff. After weeks or months atrophy of the shoulder and hand occurs and adhesions or contractures limit motion in the affected parts. Atrophy of bone with high grade osteoporosis usually appears in roentgenograms, which always show normal joint structure.

This syndrome is thought to be a reflex dystrophy. It needs to be differentiated from rheumatoid arthritis. Treatment with usual measures of physical therapy and analgesics is often without benefit. Usually brachial plexus or superior cervical ganglion block with procaine hydrochloride is the most effective means of allaying pain, which should be accomplished effectively as soon as possible so that functional exercises can be effected to prevent stiffness. If stiffness of shoulder or hand results occupational and physical therapy may rehabilitate.

Psychogenic Rheumatism.—A common form of nonarticular rheumatism in civilian as well as military practice is psychogenic rheumatism—the rheumatic manifestations of psychoneurosis. During World War II it was the commonest form of rheumatism encountered in many hospitals and field areas. Psychoneurotic persons in emotional conflict caused by psychic trauma, fear, anxiety, apprehesion or sorrow may experience arthralgia, muscle and tendon aches, stiffness, interference with joint motion and other rheumatic symptoms, which resemble some forms of arthritis or fibrositis from which they must be differentiated. Recognition is usually not difficult when psychogenic rheumatism exists alone. Absence of joint changes on clinical and roentgenologic examination, normal laboratory observations and good organic health are characteristic. Bizarre deformities not conforming to anatomic changes and recognition of other evidence of psychoneurosis are helpful diagnostic features. More difficult is it to differentiate psychogenic rheumatism from fibrositis. Aids are: lack of consistent localization of symptoms; lack of benefit from analgesics, heat and physical therapy; failure to improve in warm atmosphere and after mild exercise—all usually beneficial to patients with fibrositis. Treatment should be directed to relieving the emotional conflict, rationalization of the problems and correction of the psychoneurosis. Unless these objectives are realized treatment will be disappointing.

MISCELLANEOUS FORMS OF ARTHRITIS

There are many kinds of joint diseases which are difficult to classify, and many which appear to be associated or secondary manifestations of profound constitutional illness. We refer particularly to the long list of diseases in which arthritis, arthropathy or arthralgia is frequently associated (see lower half of table 3) and to such other entities as neurogenic arthropathy, intermittent hydrarthrosis and new growths of joints. The list could be even further extended, but the conditions mentioned are undoubtedly the important ones, excluding of course the more common arthritides discussed in other sections. While not as frequently observed as these latter, yet they are important for their own sake, as well as for the fact that they must be kept continually in mind in differential diagnosis.

These conditions have been regrouped in the following paragraphs for the purpose of this discussion.

Neurogenic Arthropathy.—In this category belong the Charcot joints of tabes dorsalis discussed in the section on arthritis due to known microbial agents. Identical arthropathy occurs in syringomyelia and after some peripheral nerve lesions.

There are also functional derangements of joints, without structural change, considered to be psychogenic in origin. The hysterical joint belongs in this group. Recently considerable emphasis has been placed on what some call psychogenic rheumatism (discussed in the previous section). Some observers believed that these psychogenic conditons, when of long standing, may result in true organic changes.

New Growths.—New growths of joints occur with only moderate frequency and may arise from any of the articular tissues. Joints may also be involved secondarily by neoplastic processes arising from adjacent or remote parts of the body. These metastatic lesions are especially important when they involve the spine and must be kept in mind when back pain is extremely severe. Sarcoidosis may produce bone changes and arthralgia.

Reiter's Disease.—Under this heading have been grouped a moderate number of patients in whom arthritis of one or more joints is associated with urethritis, conjunctivitis and keratinising skin lesions. The disease is said to be limited to males. It causes mild to moderate constitutional reactions. The arthritis lasts for weeks or months, and tends to recur. No consistent bacteriologic or other cause has been identified and the true nature of the disease, if it be a separate entity, awaits further clarification.

Intermittent Hydrarthrosis.—This is considered by some to be a distinct entity but may be a manifestation of early rheumatoid arthritis or of some other joint disease. One should use the term with caution and only after every effort to establish a more definite diagnosis by careful physical and laboratory studies.

Palindromic Rheumatism—Palindromic rheumatism also is considered by some to be a true entity, but by others to be a form of rheumatoid arthritis. Its chief features are multiple afebrile attacks of acute or subacute arthritis with pain, swelling, redness and disability, usually of only one small or large joint, in adults of either sex. The attacks appear suddenly, develop rapidly and generally last only one or two days, then disappear completely but recur at short or long irregularly spaced intervals. There is little or no constitutional reaction or abnormality in the laboratory tests, and no significant functional, pathologic or roentgenographic residues are present even after years of the disease and scores, or even hundreds, of attacks. The causation is unknown and the treatment is symptomatic.

Aseptic Necrosis of Bone.—This may occur secondary to an infarct or other localized loss of arterial blood supply. The common cause of this condition is intraarticular fracture or a dislocation. These conditions result in pronounced irregularity in the contour of the articular surface with secondary degenerative joint disease.

Juvenile osteochondritis, such as Legg-Calve-Perthes' disease, produces a change in contour of the joint surfaces similar to that which results from aspetic necrosis. Degenerative joint disease eventuates if full restoration of the contours of the intra-articular surface does not occur. These conditions differ from traumatic aseptic necrosis in that under favorable conditions restoration of normal articular contours can be expected.

Loose Bodies.—Loose bodies in the joint such as those resulting from osteochondromatosis, osteochondritis dissecans, loose fragments from intra-articular fracture, fractured menisci or other foreign bodies, result in sufficient irritation to produce degenerative joint disease.

There are a number of conditions profoundly involving the general health of the subject, most of them of unknown causation and only secondarily manifesting arthralgia and/or acute or chronic bone and joint changes. These conditions include acromegaly, which produces a severe and by some considered a specialized form of degenerative joint disease; ochronosis, which produces degeneration of cartilage, particularly in the intervertebral spaces; clubbing and pulmonary osteoarthropathy secondary to many visceral disorders; hemophilia, which results in hemorrhages into the joint cavity and subchondral bone, producing bone and cartilage degeneration; purpura of various types; Gaucher's and Raynaud's disease. The climacteric commonly is associated with arthralgia but does not cause true arthritis.

Recently attention has been called to the similarity in the pathologic characteristics of a group of diseases, roughly classified as collagen degeneration diseases, and manifesting, among other symptoms, variable forms and degrees of polymyositis, polyneuritis, arthralgia and acute and chronic arthritis. These conditions include acute disseminated lupus erythematosus, dermatomyositis, periarteritis nodosa and scleroderma. The diversity of the clinical pictures suggests varying etiologies. The symptoms vary widely depending on the extent and maximum location of the diffuse lesions. However, the basic pathologic changes, which are mainly in tissues of mesenchymal origin and around small blood vessels, are similar in all. This does not necessitate the assumption of an identical cause, but may mean that these tissues react similarly to diverse agents. The causation of all these syndromes is still unknown, a basic tissue hypersensitivity having been hypothesized most often. No specific therapy is available.

Experimental work indicates that there are true allergic forms of arthritis such as those observed during serum sickness and possibly sequential to the administration of drugs, particularly sulfonamide compounds and penicillin. Some observers believe that sensitivity to various foods may cause transient or permanent joint changes but proof is lacking. True allergic arthritis, aside from serum sickness, is probably rare; the diagnosis should be made with caution.

ADDENDUM

As this Primer goes to press, Hench, Kendall, Slocumb and Polley have just made a preliminary report on the effects of an adrenal and of a pituitary hormone on rheumatoid arthritis. The adrenal cortical hormone, 17-hydroxy-11-dehydrocorticosterone (compound E), has been administered to 14 patients, and pituitary adrenocorticotropic hormone (ACTH) to 2 patients with severe or moderately severe rheumatoid arthritis. In each case improvement in clinical features and in sedimentation rates began to occur within a few days. When administration of the hormone was discontinued the disease generally relapsed promptly.

The rarity of these compounds presently and in the immediate future, and the limited scope of the preliminary data, especially regarding prolonged administration, make inappropriate now the use of the term "treatment" except in an investigative sense. The authors presented their paper, not as a clinicotherapeutic report, but as a study of certain physiologic effects which these new hormones exert on rheumatoid arthritis.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

PENICILLIN (See New and Nonofficial Remedies 1948, p. 148).

The following dosage forms have been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Crystalline Procaine Penicillin G in Oil: 300,000 units per cc. in sesame oil, 10 cc. vials.

Crystalline Procaine Penicillin G in Oil: 300,000 units per cc. in sesame oil with aluminum monostearate 2 per cent, 1 cc. cartridges with B-D disposable syringe.

E. R. SQUIBB & SONS, NEW YORK

Crystalline Procaine Penicillin G in Oil: 300,000 units per cc. in peanut oil with aluminum monostearate 2 per cent, 10 cc. vials.

DIGITOXIN-U.S.P. (See New and Nonofficial Remedies 1948, p. 267).

The following dosage form has been accepted:

ELI LILLY AND COMPANY, INDIANAPOLIS 6

Solution Crystodigin: 0.2 mg. per cc., 1 cc. ampuls and 10 cc. vials.

Tablets Crystodigin: 0.1 mg. and 0.2 mg.

U. S. trademark pending.

AMINOPHYLLINE-U.S.P. (See New and Nonofficial Remedies 1948, p. 325).

The following additional dosage form has been accepted:

BARLOW-MANEY LABORATORIES, INC., CEDAR RAPIDS, IOWA

Solution Aminophylline: 0.5 Gm., 2 cc. and 20 cc. ampuls and 0.24 Gm., 10 cc. ampuls.

DIPHTHERIA AND TETANUS TOXOIDS, ALUM PRECIPITATED-U.S.P. (See New and Nonofficial Remedies 1948, p. 498).

CUTTER LABORATORIES, BERKELEY, CALIF.

Diphtheria and Tetanus Toxoids Aluminum Hydroxide Adsorbed Combined (Alhydrox): 1 cc. and packages of two 1 cc. vials. Each cc. contains the required amount of both diphtheria and tetanus toxoids aluminum hydroxide adsorbed. Preserved with sodium ethylmercurithiosalicylate 1:10,000.

Council on Physical Medicine

REPORT OF THE COUNCIL

The Council on Physical Medicine has authorized publication of the following report: HOWARD A. CARTER, *Secretary.*

MONAGHAN PORTABLE RESPIRATOR ACCEPTABLE

Manufacturer: J. J. Monaghan Company, Inc., 4401 Morrison Road, Denver 3.

The Monaghan Portable Respirator is a respirator of the cuirass type. It is designed to give artificial respiration somewhat after the manner of the tank type respirator but without enclosing all of the trunk and extremities. The essential feature is a plastic dome, cuirass or shell that fits only over the chest and abdomen. An electrically driven pump supplies negative pressure at regular intervals to produce breathing.

A storage battery powerful enough to operate the pump for four hours is automatically thrown into action by a special switch in the event of failure of the regular power supply. In addition, a simple provision for hand operation is made.

The apparatus submitted to the Council included one set of plastic cuirass shells (six different sizes), one power unit, one portable self-charging battery unit, four leather straps (for suspending power unit and batteries), two corrugated rubber hoses, six flexible shell straps and one inflating bulb. The total weight is given as 20 Kg. (45 pounds). The shipping weight is 32 Kg. (71 pounds). The power unit is designed to operate either on 110 volts alternating current or 12 volts alternating or direct current with no changes or adjustments. The weight of the battery unit is 18 Kg. (39 pounds).

The power consumption is stated to be 100 watts (1 ampere at 110 volts or approximately 8 amperes at 12 volts). The frequency can be adjusted from 14 to 30 strokes per minute.

The need for the variety of sizes and shapes of shells arises from the fact that leaks between the shell and the patient's body greatly reduce the effectiveness of any cuirass type of respirator. The volume of the space between the cuirass and the patient's body is remarkably small as compared with the corresponding space in the tank type of respirator. This means that any inequality between the volume of air aspirated by the pump and the volume of air that can be inhaled by the patient must result in much greater fluctuations of pressure in the chamber. An inequality that would pass unnoticed in the tank type is intolerable in the cuirass type, and it is easy to show that the smaller the volume of space between the patient and the walls of the respirator chamber, the more important it is that the volume of air aspirated by the pump should be nearly equal to the tidal air one intends to produce in the patient.

The Monaghan Portable Respirator has been found to conform to the "Requirements for Acceptance of Cuirass Type Respirators" described in THE JOURNAL, Nov. 15, 1947, page 715. It has a limited use in applying emergency artificial respiration. Its usefulness in acute poliomyelitis, according to the evidence that has been reviewed by the Council, is confined to transporting the victim from a remote place to a center where a tank type of respirator is available. The Monaghan Portable Respirator does not take the place of a tank type of respirator and is accepted only as supplemental equipment.

This appliance does not adequately equip a medical organization or clinic for sustained artificial respiration to patients with acute poliomyelitis and respiratory failure. The device is not accepted for emergency artificial respiration by life-saving crews such as those of the police and fire departments. In chronic poliomyelitis, the device is recommended for "weaning" the patient from his dependency on prolonged artificial respiration. The Monaghan Portable Respirator is also useful for temporary artificial respiration when nursing care and physical therapy are given to a patient who is otherwise confined to a tank type of respirator.

The Council on Physical Medicine voted to include the Monaghan Portable Respirator in its list of accepted devices.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 30, 1949

ADRENAL CORTICAL HORMONE FOR ARTHRITIS

Hench, Kendall, Slocumb and Polley[1] have just made a preliminary report on the effects of an adrenal and a pituitary hormone on rheumatoid arthritis. In his Heberden Oration, delivered before the Heberden Society of London, Oct. 15, 1948,[2] Hench stressed that rheumatoid arthritis is not necessarily a relentless, chronic, progressive condition which will never have a satisfactory, rapid method of control. He emphasized that even now rheumatoid arthritis is potentially rapidly reversible in any stage of the disease and therefore will eventually become rapidly reversible or rapidly controllable. The stimulus or stimuli necessary to set in motion the processes have been spontaneous, accidental or therapeutic. Chrysotherapy will induce striking remissions in only about 10 or 15 per cent of cases. From a combined program of gold, physical therapy, removal of foci of infection, rest and nutritious diet, striking results are promptly obtained in not more than 15 per cent of cases. When the potency of these remedies is compared with that inherent in jaundice or in pregnancy, which induces definite articular remissions in about 60 to 90 per cent of the cases, a great unrealized potential for the relief of rheumatoid arthritis becomes obvious. The phenomenon of relief of rheumatoid arthritis by jaundice or pregnancy suggested that the disease is caused by some basic biochemical disturbance rather than by a microbic agent. The authors therefore concluded that the discovery of some biochemical denominator common to various agents or states beneficial in rheumatoid arthritis, but commom to jaundice and pregnancy, would provide an improved treatment or control of the disease.

They conjectured further that the antirheumatic substance X might be an adrenal hormone. Since the fall of 1948 these authors have administered the adrenal cortex (17-hydroxy-11-dehydrocorticosterone), designated as compound E, to 14 patients with moderately severe or severe chronic polyarticular rheumatoid arthritis of four and one-half months' to five years' duration. These patients had not been satisfactorily responsive to previous therapy. In 9 of the 14 patients, within a few days a reduction of stiffness of muscles and joints was noted; also lessening of articular aching and pain on motion and tenderness, and significant improvement of articular and muscular function. The appetite often was rapidly improved, and a gain in weight and apparent loss of toxicity of the disease occurred. To similar patients with severe rheumatoid arthritis was given 100 mg. of adrenocorticotropic hormone intramuscularly for twelve days with much the same beneficent results. The sedimentation rates were reduced when either hormone was employed. When their use was discontinued symptoms and signs of rheumatoid arthritis usually but not always returned or increased promptly.

The authors feel that certain clinical facts and theoretical considerations suggest that these adrenal and pituitary hormones may be useful against other rheumatic diseases or against certain nonrheumatic diseases which generally are relieved by pregnancy or jaundice.

The present communication is offered not so much as a clinical therapeutic report as a study of certain physiologic effects which these new hormones exert on rheumatoid arthritis.

Merck & Co., Inc., who have supplied compound E for this study, expressed their regret in a letter in this issue of The Journal that supplies of compound E cannot be expected for treatment or additional research until sometime in 1950 at the earliest; even then supplies will be exceedingly small.

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[1] Hench, P. S.; Kendall, E. C.; Slocumb, C. H., and Polley, H. F.: The Effect of a Hormone of the Adrenal Cortex (17-Hydroxy-11-Dehydrocorticosterone: Compound E) and of Pituitary Adrenocorticotropic Hormone on Rheumatoid Arthritis, Proc. Staff Meet., Mayo Clin. **24:** 181 (April 13) 1949.

[2] Hench, P. S.: Potential Reversibility of Rheumatoid Arthritis, abstracted, Proc. Staff Meet., Mayo Clin. **24:** 167 (March 30) 1949.

ANTICOAGULANTS IN CORONARY THROMBOSIS WITH MYOCARDIAL INFARCTION

Blumer[1] reported in 1937 that mural thrombi are present over the intracardial surface of the infarcted area in about half of the patients with cardiac infarction due to coronary occlusion. Fragments of such thrombi when detached produce clinically recognizable embolic phenomena in about 14 per cent of patients with cardiac infarction. Solandt and his co-workers[2] tied the descending branch of the left coronary artery in dogs and then infiltrated the myocardium at the tip of the ventricle with 2 cm. of 5 per cent sodium ricinoleate. Necropsies performed twenty-four hours later on a series of dogs thus treated invariably revealed macroscopic mural thrombi. A series of animals treated similarly except that they had received heparin showed damaged myocardium, necrotic endocardium but absence of mural thrombi. Neither macroscopic nor microscopic mural thrombi were found in this series. In these experiments necrosis and thrombus formation started almost as soon as the sclerosing chemical was brought into contact with the myocardium. After coronary thrombosis several days must probably elapse before necrosis becomes sufficiently severe to induce mural thrombus formation. Thus, these authors theorize one might prevent the formation of a mural thrombus even if the administration of heparin was started rather long after the initial thrombosis. Dale and Jaques [3] demonstrated in dogs that intravenous injection of dicumarol® increases the prothrombin time. The administration of this substance in sufficient amounts prevented the formation of intravascular or extravascular thrombi. The result demonstrates an intimate connection between the clotting mechanism and the formation of thrombi and also provides an experimental basis for the clinical use of the material to prevent thrombosis.

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[1] Blumer, G.: The Importance of Embolism as a Complication of Cardiac Infarction, Ann. Int. Med. **11:** 499-504 (Sept.) 1937.

[2] Solandt, D. Y.; Nassim, R., and Best, C. H.: Production and Prevention of Cardiac Mural Thrombosis in Dogs, Lancet **2:** 592-595 (Sept. 9) 1939.

Peters and his co-workers [4] treated 60 patients having coronary thrombosis and myocardial infarction with the accepted treatment, while 50 patients received the usual treatment plus dicumarol® sufficient to maintain their plasma prothrombin activity at 35 to 50 per cent of normal. The incidence of clinical embolism was 16 per cent in the nondicumarolized group and 2 per cent in the dicumarolized group. The mortality rate in the nondicumarolized group was 20 per cent and in the dicumarolized group was 4 per cent. Nichol and Page [5] administered dicumarol® to 44 unselected patients with acute coronary thrombosis with an immediate mortality of 16 per cent. All 26 patients treated in their first attack survived. Neither mural thrombi nor systemic or pulmonic embolic phenomena were found in 6 on whom later postmortem examination was done. In 1 case only was there clinical evidence of pulmonary embolism, and the patient in this case received an ineffective dose of dicumarol.®

The Committee for the Evaluation of Anticoagulants in the Treatment of Coronary Thrombosis with Myocardial Infarction,[6] appointed in 1946 by the Board of Directors of the American Heart Association, presents a statistical study of 800 cases. The report is concerned with the incidence of deaths and of both thromboembolic and hemorrhagic complications in a control series of patients treated by the conventional methods alone and in series of "treated" patients who received anticoagulants (dicumarol,® heparin or both) in addition to the conventional therapy. In 25 per cent of the control patients one or more thromboembolic complications developed, and *only* 11 per cent of the treated patients had at least one such complication. Among each hundred cases in the control group thirty-six thromboembolic complications were diagnosed clinically, whereas among each hundred cases in the treated group only fourteen thromboembolic complications were so diagnosed. Evidence of extension of the original thrombosis was found in 9 cases per hundred in the control series as against 2 cases per hundred in treated cases. Infarction of new areas in the myocardium occurred in 6.5 per cent per hundred in the control series as against 2.5 among treated patients. Pulmonary emboli occurred in 9.4 cases per hundred among the control group as against 5.2 cases among the treated cases. Cerebral emboli occurred in 3.4 cases per hundred of the control patients as against 1.4 cases per hundred among the treated patients. Peripheral emboli developed in 3 cases per hundred of the control group as against 1 per hundred of the treated patients, and venous thrombosis occurred in 5 cases per hundred of the control group as against less than 2 per hundred treated patients. Thus, those receiving anticoagulant treatment had a distinctly better chance of escaping thromboembolic complications than those who received the conventional form of therapy alone.

The committee contends that a range of 30 to 50 seconds of the minimum prolongation of the prothrombin time as measured by the Link-Shapiro modification of the Quick one stage technic produces a safe and an effective therapeutic level. This range of prothrombin times approximates a decrease in prothrombin activity to between 20 and 10 per cent. The committee concludes that patients treated with anticoagulant therapy in addition to the conventional forms of therapy experience a death rate and incidence of thromboembolic complications during the first six week period following an attack lower than those experienced by patients treated solely by conventional methods. Anticoagulant therapy should be used in all cases of coronary thrombosis with myocardial infarction unless a definite contraindication exists. In the absence of other hemorrhagic states, the hazards for hemorrhage due to anticoagulants are not sufficient to contraindicate their use in the treatment of coronary occlusion provided that facilities exist for adequate laboratory and clinical control.

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[3] Dale, D. U., and Jaques, L. B.: The Prevention of Experimental Thrombosis by Dicoumarin, Canad. M. A. J. **46**: 546-548 (June) 1942.

[4] Peters, H. R.; Guyther, J. R., and Brambel, C. E.: Dicumarol in Acute Coronary Thrombosis, J. A. M. A. **130**: 398-403 (Feb. 16) 1946.

[5] Nichol, E. S., and Page, S. W., Jr.: Dicumarol Therapy in Acute Coronary Thrombosis; Results in Fifty Attacks, with Review of Data on Embolic Complications and Immediate Mortality in Myocardial Infarction, J. Florida M. A. **32**: 365-370 (Jan.) 1946.

[6] Wright, I. S., Marple, C. D., and Beck, D. F.: Report of the Committee for the Evaluation of Anticoagulants in the Treatment of Coronary Thrombosis with Myocardial Infarction: (A Progress Report on the Statistical Analysis of the First 800 Cases Studied by This Committee), Am. Heart J. **36**: 801-815 (Dec.) 1948.

Current Comment

INTERNATIONAL CONGRESS ON RHEUMATIC DISEASES

Among the great unsolved problems of medicine are such conditions as arthritis, rheumatic fever and allied "rheumatic" diseases, which are a significant factor in disability and loss of time in industry. In 1948 the Arthritis and Rheumatism Foundation was established. An International Congress on Rheumatic Diseases will be held at the Waldorf-Astoria in New York from May 30 to June 3. This congress is the first International Congress on Rheumatic Diseases to be held in the United States. Seven (five morning and two afternoon) scientific plenary sessions will be held, and there will be five one-hour round table conferences. In the afternoons several New York hospitals will have clinics in which prominent foreign guests as well as national authorities will be represented. Some one hundred and fifty foreign physicians are expected. The conference is open to qualified physicians. The complete program together with information on registration, entertainment and other activities can be obtained from Mr. Robert D. Potter, Executive Director, 535 Fifth Avenue, New York 17, New York.

MISLEADING PROPAGANDA OF THE "COMMITTEE FOR THE NATION'S HEALTH"

From the mimeographed publicity releases that are circulated by the so-called Committee for the Nation's Health, this organization would appear to be the spearhead in support of the nationalization of medicine in the United States. A recent release is an attack on the National Physicians Committee which repeats the false charge that the National Physicians Committee was an agency of the American Medical Association. Another release charges that state and county medical societies are using "monopolistic controls" to sabotage voluntary health insurance programs. To these charges, Dr. Elmer L. Henderson, Chairman of the Board of Trustees of the American Medical Association, issued the following reply:

> This is an irresponsible statement by an irresponsible organization. The charges are false in fact and false in implication. If there are any saboteurs at work, seeking to destroy voluntary health insurance, they undoubtedly will be found in the membership of The Committee for the Nation's Health, which has repeatedly sought to discredit and decry the voluntary health insurance movement.
>
> The people have a right to question the source of these charges—and the sincerity of the people making the charges. The Committee for the Nation's Health has done nothing to advance the nation's health since it has been in business. It was organized solely as a propaganda agency for the socialization of medicine and now apparently has embarked on a campaign to discredit the voluntary systems.
>
> The state and county medical societies throughout the United States, and the American Medical Association, are proud of the part they have played in the phenomenal growth of the voluntary health insurance systems, which now provide prepaid health protection for more than 52,000,000 people.
>
> The cry of monopoly is as absurd as it is false. There are hundreds of competitive voluntary health insurance systems functioning in the country, some under medical sponsorship, some under hospital auspices, and many operated by outstanding private insurance companies.
>
> The doctors of America are supporting all sound voluntary systems, which offer the people adequate protection, and we are now engaged in a great nationwide campaign to make America health insurance-conscious and to increase voluntary coverage. The charges that the medical profession is sponsoring restrictive legislation to achieve "monopolistic control" of the health insurance field are utterly without foundation.

STATEMENT ON BIOLOGIC WARFARE

Recently the Secretary of Defense pointed out[1] that widespread misunderstanding of the potentialities of biologic warfare has resulted from extravagant, inaccurate and unduly spectacular statements. Statements have been made, for example, "that a single plane with a small bomb filled with a biological agent would be capable of wiping out the entire population of a whole city . . ." or "that one ounce of a particular biologic material would be sufficient to kill 200,000,000 people . . ." or that "biologic warfare makes it possible to kill the population of an entire continent . . ." These and similar claims are fantastic and completely unwarranted. Biologic warfare is an attempt to harness epidemic and nonepidemic diseases for purposes of warfare directed against persons, animals and plant food sources. As many of the facts governing spread of epidemic diseases are incompletely understood, one cannot be certain that an epidemic of significant proportions could be produced at will. In any case, proper sanitation and medical treatment could minimize such effects. An important defense against biologic warfare lies in the early identification of disease implanted and prompt institution of appropriate countermeasures to prevent spread. The United States Public Health Service, the Department of Agriculture, other federal and many state and municipal health agencies are now alert to the possibility of such attack. The maintenance of high standards of public health and sanitation and protective measures for animals and crops is considered the first line of defense against biologic warfare. Prompted by intelligence reports of enemy activities in this field during World War II, intensive investigation of the possibilities and potentialities of biologic warfare were initiated in the United States in close collaboration with British and Canadian allies. Research efforts were aimed principally toward securing adequate protection against the use of such elements in warfare by our enemies. The Army, Navy, civilian scientists, private research institutions, industries and departments of government all worked in close collaboration toward these ends. As a by-product of these investigations much information of great peacetime benefit in medical, agricultural and allied fields has been developed. Research and investigation still continue and informational material will be periodically released regarding these activities within limitations imposed by national security considerations.

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[1] Forrestal, J.: Statement on Biological Warfare Potentialities, National Military Establishment, Office of the Secretary of Defense, March 12, 1949, no. 45-49.

ORGANIZATION SECTION

MEDICINE IN JAPAN

A REPORT TO GENERAL DOUGLAS MACARTHUR, SCAP, THROUGH BRIG. GENERAL CRAWFORD F. SAMS, DIRECTOR HEALTH AND WELFARE DIVISION, BY THE MISSION OF THE AMERICAN MEDICAL ASSOCIATION WHICH VISITED JAPAN AUG. 3-30, 1948.

A formal invitation was sent by the Department of the Army to the American Medical Association to send a committee to the Far Eastern Command in Tokyo, Japan, for the purpose of reviewing and making recommendations on social security and insurance programs.

Later the following order was received by members of the mission of the American Medical Association:

1. The following named individuals are hereby directed to proceed by commercial aircraft from the places indicated to Fairfield-Suisun Air Force Base, California, reporting thereat before noon 1 August 1948 for further movement by military aircraft to Tokyo, Japan on temporary duty for approximately sixty (60) days, in connection with Civil Affairs/Military Government activities, for American Medical Association Mission, and upon completion of mission to return to home station.

Dr. Elmer L. Henderson, 606 South 4th Street, Louisville, Ky.

Dr. Roscoe L. Sensenich, 180 North Main Street, South Bend, Ind.

Dr. Ernest E. Irons, 122 S. Michigan Ave., Chicago, Ill.

Dr. John H. Fitzgibbon, 812 S. W. Washington St., Portland, Ore.

Dr. Edward J. McCormick, 405 Madison Ave., Toledo, Ohio.

This mission arrived in Tokyo Aug. 3, 1948, spent the first ten days in orientation studies and conferences which included conferences with General MacArthur, General Sams, heads of the several sections of the Health and Welfare Division of the Supreme Commander Allied Powers (SCAP) and the Civil Affairs Division, Military Government Activities, and with officials of the Japanese Government and officers and members of the Japan Medical Association. Reports and data on the many activities of the Health and Welfare Section of SCAP were made available and every facility was afforded to arrive at a fair but realistic opinion.

It quickly became evident that the problem of Health and Welfare and indeed apparently all of the activities of the military government were concerned not with guiding a nation already proceeding along democratic lines who needed direction in the development of medical concepts such as those of social insurance, as was implied in one report of a previous mission, but rather that the Japanese nation had been completely totalitarian and that, for example, while the several forms of health, disability and unemployment insurance in origin and to some extent in operation were separated into large units, they had been all under dominant direction of the central government. The problem of SCAP was that of establishing *de novo* the principles and organization of a democracy among a people who for centuries have known no real liberty. Their totalitarian government had proceeded beyond the stage admittedly advocated by socialistic propaganda in the United States and had already reached the inevitable dictatorship. The problem of SCAP was thus the building of democracy from the ground up, at first by directive and then, as the Japanese acquired some initiative, proceeding by suggestion and advice. The magnitude and the difficulties of the operation as well as the reason for certain procedures can be best understood by some reference to the economic, medical and political situation in Japan following the surrender in August 1945. A brief review of the measures already taken and of their observed effects up to date will then suggest such recommendations as we can make.

JAPANESE ECONOMY

Japan had been a completely totalitarian nation, and in all economic and other activities looked for direction to the central government at Tokyo. The four main islands are mountainous, with approximately 15 to 17 per cent arable land (not over 20 per cent if marginal lands are included), with a total land area about that of California (approximately 158,000 square miles) and a population of 80,000,000. For many years the population had exceeded that which could be fed on the minimal requirement by the indigenous food supply, in spite of intensive agriculture.

Japan, a warlike nation, invaded other more pacific nations and exported a portion of her excess population to Korea, Manchuria and later to China and islands of the Southwest Pacific.

Japan is poor in natural resources. There is some brown coal but no coking coal. There is no locally raised cotton. The mulberry bush is an exception, but rayon has now interfered with the silk industry. By building up a large merchant marine, the Japanese were able to import raw materials and export manufactures made by controlled labor. By maintaining low standards of living they were able to import about 15 per cent of their food supply, and at the same time to accumulate profits to the amount of $50,000,000,000 to $75,000,000,000. This they invested in Korea ($5,000,000,000), in Manchuria ($11,000,000,000) and in other conquered areas and in armaments. This external wealth together with ships and armaments has been lost. The internal economy has been disorganized by total war, and there persists the 15 per cent deficiency in indigenous food supply. The immediate economic problem is therefore the reestablishment of manufactures and of business enterprise and the feeding of the people until they can build up a trade balance sufficient to purchase necessary food.

The problem of promoting democracy in a previously totalitarian nation is thus made doubly difficult by threatened economic collapse. It is a problem, however, which must be met and solved, if chaos and its political outcome are to be prevented. Economic problems are obviously beyond the province of this medical mission, but it is clear that plans for improvement of medical service, the raising of standards of medical education, the control and cure of epidemic and endemic disease and the health and social welfare of the people as contributed to by prepayment medical care and insurance plans can be considered only in relation to and as a part of the economic rehabilitation of the country. To be permanent and successful any program must be realistic and within the ability of the Japanese economy to pay.

The entire procedure of changing the thinking of a nation from totalitarian to democratic concepts must of necessity be a gradual one and must be conditioned to conform to Japanese ideology. Few Japanese have an understanding of what is meant by democracy, liberty or personal responsibility. All of these concepts had to be planted and nurtured. At first the military government had to proceed by directive, but since July 1946, as the Japanese Diet increased in initiative, SCAP has suggested and advised. In the political field, the governors of the forty-six prefectures, who were previously appointed by the central government, are now elected by popular vote. The electoral system has been extended further into the local communities and *guns* (counties). The Diet has been encouraged to pass new laws in keeping with the new democratic status.

JAPAN MEDICAL ASSOCIATION

One of the first medical requirements was the dissolution of the old Japan Medical Association, membership in which was compulsory. This association was merely a harness to keep all doctors under central government control, chiefly for the administration of government insurance plans. The new Japan Medical Association, organized in November 1947, provides for local *gun* (county) societies, prefectural (state) associations and a central association with representative and voluntary membership. This has been accepted by the Japanese, who, however, were dubious about the success of voluntary membership. However, there are now 56,000 members out of approximately 68,000 doctors. "Upon arrival of Occupation Forces the Japanese public health and welfare activities were found to be in a very demoralized state and practically inoperable. An unsound administration plus the nation's efforts to gear itself during the war had completely broken down any semblance of health or welfare function." Reserve insurance funds had been diverted to the financing of the war.

The Medical Treatment Corporation was another governmental method of taking over the complete care of the Japanese people. This was organized in 1942 and at the time of the surrender had control of six hundred hospitals. All doctors were on salary. This organization was dissolved by SCAP, and the hospitals returned to private local and prefectural custody and use.

Among the immediate acute problems was the control of epidemic diseases. Vaccination against smallpox had been neglected, and there was an epidemic of 17,000 cases. A large scale vaccination program of the entire population was carried out, and smallpox has been practically eliminated from Japan.

CONTROL OF TYPHUS

An epidemic of 32,435 cases of typhus occurred between Sept. 1, 1945 and Aug. 31, 1946. Approximately 17,000,000 persons were dusted with DDT and 5,300,000 vaccinated. Since the second occupational year there have been no further large outbreaks. Similar control of diphtheria, cholera and typhoid epidemics was secured by suitable quarantine, sanitary measures and vaccinations. Tuberculosis has been made a reportable disease. Case finding by roentgenologic and physical examination has been carried out in many factories and schools. Some 23,000,000 persons have been immunized with BCG, a program already introduced in Japan in 1937 but interrupted by war. Venereal diseases were made reportable shortly after the occupation began.

These items serve to indicate the wide activities of the Section of Public Health and Welfare. Other activities concerned sanitation, water supplies, insect and rodent control, sewage disposal, port quarantine and the establishment of health centers in the prefectures. A national Institute of Health has been organized to include in its functions the assay of drugs and biologic products. The Institute of Public Health has been reorganized for the training of public health workers.

MEDICAL EDUCATION

Medical education, the quality of which had further deteriorated during the war, has been reorganized. There were some fifty-three medical schools; some were connected with universities and had reasonable premedical requirements; the majority were connected with normal schools (*Semmon Gakko*) with fair to poor educational requirements. Eight of these poor schools have been closed and eighteen given five years' probation to bring their standards up to university level. During the war many medical students had been admitted with not even normal school training.

National examinations for medical licensure were held for the first time in Japan in April 1947. Previously graduation from medical schools admitted to practice. Some two hundred and fifty separate quasimedical practices have been made illegal.

JAPANESE HOSPITALS

All Japanese hospitals were "closed" institutions with a paid staff of doctors. Most civilians received medical care by going to hospitals. The outpatient services numbered about three times those of the inpatients. The private practitioner who had no hospital connection found it necessary to provide means by which he could maintain contact with his patients, and so thousands of small hospitals with five to ten mats (beds) had grown up, usually offering inferior medical care. At the end of the war there were four hundred and ninety-seven army and navy hospitals which had to be transferred to some other authority. Some were turned over to the Ministry of Welfare; some were converted to general hospitals, tuberculosis sanatoriums and leprosaria, and some were closed. The remainder were made national hospitals and are now "open" hospitals to which any reputable practitioner may send his patient and where he may continue his treatment.

JAPANESE DENTAL ASSOCIATION

A new Japanese Dental Association has been organized. A Nursing Education Council has been formed and demonstration schools of nursing provided. Two types of nurses are planned—the graduate nurse with adequate educational background and three years' training and the practical nurse with less education and one year's training. Extensive nutrition surveys have been carried out. Under the direction of SCAP the pharmaceutic industry has been reestablished, so that now antibiotics and biologic products of controlled potency are domestically produced in amount sufficient for national needs.

These are some of the many accomplishments of the Division of Public Health and Welfare of SCAP in the introduction of democracy into a previously totalitarian country.

In our talks to medical associations and local societies we emphasized liberty of opinion and action under the new régime; with liberty comes responsibility for quality of service and for intiative; with liberty and responsibility must come dignity and the maintenance of high professional and moral standards. No physician can afford to "lose face" by joining a labor union.

The Japanese are an industrious people. They have been exploited by a dictatorship for many decades. An extremely low standard of living has been enforced by controlled labor, and in the process individual initiative has been crushed. Their industrious habit must be continued and not discouraged by socialistic invitation to depend more and more on the government. As private enterprise is reestablished and individual initiative encouraged, the people should and can receive a larger proportion of the result of their own industry in improved standards of living.

In spite of many years of stifled private initiative, there is a growing participation of private nongovernmental agencies in welfare and relief activities. A national fund-raising committee for financing private welfare agencies was organized in 1947 along lines similar to those of our "Community Chest." This was the first campaign of the kind in Japan and secured 84.2 per cent of the announced goal of 678,000,000 yen. Along with the governmental school lunch program, a voluntary agency, especially in rural areas, provided 600,000 children with lunches without governmental help. These efforts are of popular origin and independent of the Zaibatzu families.

The problem of the American Medical Association mission therefore became that of suggesting ways and means by which the program already initiated by the Public Health and Welfare Section of SCAP, which envisages the democratization of the Japanese people economically, politically and medically, can be further facilitated. The measures taken for the control of epidemic diseases, the improvement of sanitation and the establishment of health centers with instruction of the people would doubtless be regarded by everyone as desirable and highly commendable. The chief questions which arise under discussion concern conditions under which physicians must practice, the control of hospitals and their staffs and the administration of existing and proposed social security and prepayment medical plans.

JAPANESE INSURANCE SYSTEMS

Fundamental studies have been made by the Section on Insurance of SCAP and a beginning has been made in the rehabilitation of insurance systems as outlined in a report July 1948 by SCAP, "Modern Japan in the field or social insurance, as in many other fields, took over western institutions without accepting their basic philosophies. The paternalistic authoritarian character of the Japanese régime had definitely influenced its social insurance program. Although laws provided for unpaid prefectural committees to hear appeals under the social insurance programs, there were no records of any appeals having been made, few people knew that such committees existed and, in many cases, committees had not even convened for the purpose of organizing."

There are five major insurance programs in Japan whose financial integrity, however, has been seriously damaged by the diversion of reserve funds for war purposes and the financial inflation which accompanied and followed the war. The five major programs are as follows.

Health (Sickness) Insurance.—"This was a compulsory system for employees of industrial, mining, commercial and transportation concerns employing five or more and with contributions divided equally between employer and employee. This insurance provided for both occupational and nonoccupational illnesses and accidents, paying cash benefits during brief incapacitation and also providing for medical care, maternity care and funeral expenses. An average of 6,400,000 workers plus 12,900,000 dependents were covered."

Employers' Liability Insurance.—"Legislation defining and placing upon the employer in civil engineering, construction and forestry industries responsibility for occupational accidents and illnesses; providing for employer-supported reserve funds from which the employer was reimbursed for medical care, cash benefits for sickness and continuing invalidity (lump sums), funeral and survivors. Estimated coverage 1,250,000 workers."

National Health Insurance.—"A program extending the health insurance system and sponsoring voluntarily organized town and village health associations, which are supported by members' contributions and a government subsidy, providing medical and maternity care and, in some instances, funeral benefits to the rural population and self-employed individuals. Coverage of family heads and their dependents estimated at 41,000,000 persons."

Seamen's Insurance.—"A composite social insurance program for seamen serving on vessels of 20 tons or more, with contributions divided between ship owners and seamen; providing for both occupational and nonoccupational illnesses and accidents, paying cash benefits for sickness and continuing invalidity, funeral and survivors, in addition to old age and medical care. The program covered 92,000 seamen."

Welfare Pension Insurance.—"This is a compulsory system of practically the same employees as are covered by health insurance, with contributions divided equally between employer and employee; paying old age benefits (beginning in 1956) and cash benefits for continuing invalidity and survivors related to both occupational and nonoccupational disabilities. Coverage averaged 6.4 million workers."

In addition there are several government protection systems: a government pension system financed over 97 per cent by the government and covering approximately 700,000 civilian employees; a workmen's compensation for government employees with a coverage of 1,400,000; government mutual aid societies financed equally by government and employees providing medical and maternity and paying cash benefits for confinement, funeral and occupational disabilities and short term sickness; coverage is 328,000 plus 735,000 dependents; government enterprises (eleven societies) for employees in government monopolies, financed equally by the government and employees, for occupational and nonoccupational illnesses furnish a coverage of 1,500,000 employees plus an estimated 3,400,000 dependents.

There was also a Post Office Insurance and Annuity system administered by the Ministry of Communication. This program gave protection comparable to United States life, endowment or retirement commercial insurance policies and provided for death benefits, old age and limited disability. Ninety-one million policies have been issued with a face value of more than 26,000,000,000 yen.

THE SOCIAL SECURITY MISSION

A report by the Social Security Mission of 1947 (SSM) has been widely circulated and contains conclusions and implications with which the American Medical Association Mission cannot agree. This divergence of views derives from a fundamental difference in objectives of the two groups. The Social Security Mission envisages a complete compulsory system of social security and medical care for Japan under government rule and subsidy. This is not essentially different from the system which was in operation before and during the war and which presents a number of faults as pointed out by the Social Security Mission report. The American Medical Association Mission recognizes the necessity of adjusting any over-all plan to the ideology of the Japanese nation and of utilizing existing mechanisms of insurance administration, but only so far as they are compatible with the development of democratic methods necessary to turn back a totalitarian government into the ways of democracy.

The expressed objectives of the two missions (to give the Japanese people better medical care) are the same. The means to be employed differ. The American Medical Association Mission maintains that the worthy objective will not be attained by using means that inevitably will push the Japanese further along the road of centralization of power back to the totalitarianism which has failed and from which they are struggling to escape.

The Social Security Mission report seems to assume that the problem of Japanese medicine and of the social security system is the remedying of defects in a system which had been progressing in a generally desirable direction. In our opinion the system has failed under a totalitarian government and cannot succeed unless organized on democratic rather than on socialistic principles. The American Medical Association Mission would agree with a number of the points made by the Social Security Mission report as to fact and as to some of their conclusions, but this agreement would be for entirely different reasons. The factual findings are the inevitable results of an undesirable system. For example, a conclusion by the report in regard to the necessity for delay in putting into practice plans for the extension and unification of insurance systems is based in the Social Security Mission report to a considerable degree on financial and medical service difficulties. The American Medical Association Mission agrees with the desirability of delay because the systems as now set up are badly devised and productive of inferior and bad medical care. The divergence of views of the two missions can be best shown by reference to some of the recommendations of the Social Security Mission report. This report presents views not compatible with true democracy and also contains inconsistencies within itself. Some of these divergent views and inconsistencies may be best pointed out by referring to the Social Security Mission report.

The Social Security Mission has approached its study with a view to reorganizing the extensive Japanese social security system "in a democratic manner" so that the system may be more adequate, better suited to sound administration and more "responsible to the common will." To accomplish this the Social Security Mission report envisages a social security system covering the entire Japanese population with a maximum of uniformity or standardization and administered by a central authority. It expresses the idea that social security legislation "has the effect of creating conditions favorable to the exercise of initiative and enterprise and is, therefore, an important ingredient of democracy." The Social Security Mission advises further "the delegation by the Diet to a single ministry, of which the choice of the Ministry of Welfare would seem most appropriate, of full authority and responsibility for the administration of the social security program in Japan."

Such delegation and centralization of authority in the absence of local and prefectural initiative will result in a continuation of present unsatisfactory operation of social security laws. Experience with socialistic programs by which personal responsibility is minimized has always led to loss of initiative and enterprise.

As a matter of demonstrated fact the social security and health legislation covering in one way or another 41,000,000 Japanese has in the past been so manipulated by central authority as to stifle initiative and free enterprise and has therefore been an important ingredient of totalitarianism.

The Social Security Mission report continues:

"Efforts should be directed toward developing the administration of society-managed plans along the lines found useful by the more successful programs in other countries. It is believed that increased employee participation should be encouraged. Most important is the improvement of government-managed health insurance."

In the next paragraph, however, the following appears:

"It will not be simple to achieve a genuine decentralized administration sensitive to the local needs and problems of the insured group and of the persons and institutions furnishing service. Nevertheless, it is believed that the effort will be worth while and must be made if a satisfactory program is to be achieved. Specifically, it is suggested that the government-managed portion be broken up into prefectural or even subprefectural units, with its funds and contribution rates as distinct, within the statutory limits, as are the separate health insurance societies at present."

Thus in one part of the report decentralization is urged and, in another, firm government supervision as has been practiced in the past is advocated.

The Social Security Mission report noted that despite the defects in the hospital system, "it is apparent from the opinions of nearly every group consulted that insured patients generally find care more satisfactory from hospitals than from private practioners."

As a matter of fact 80 per cent of the practice of medicine in Japan was done through dispensaries attached to hospitals, so that the proportion of outpatients to inpatients was approximately 3 to 1. The Social Security Mission report fails to state, however, in this connection, that the doctors were all on salary from the hospitals and that no beds were available to other practitioners unless they established small five and ten bed hospitals themselves. These small hospitals obviously could render only indifferent service. The patronage of the hospitals by the public was therefore a result of the system of staff physicians paid by the hospitals and there were in general few other places where patients could receive similar examination and treatment. The statement in the Social Security Mission report that "as much local autonomy as possible should be permitted to encourage the development of institutions suited to local needs" would seem to be inconsistent with a proposal to center all hospital activities in a central head of a bureau of welfare. SCAP has taken an important step toward the opening of hospitals to all practitioners by providing that those hospitals now called national hospitals (that is, those taken over from the army and navy and not otherwise disposed of) shall receive the patients of any reputable practitioner, who may then follow and direct the treatment of his patient in the hospital. This is the democratic approach to providing the Japanese people with better medical care.

The Social Security Mission report notes that "perhaps the greatest cause of the present unsatisfactory conditions of the health insurance is the failure of doctors to be content with the scale of payments for service and they are succumbing to the temptation to charge fees higher than those officially allowed under the health insurances . . . However the health insurance systems will only function if the agreed-upon rates of payment for services are strictly observed. We believe that the greatest possibility for achieving that essential condition is to have the arrangements made locally between representatives of local interests, who realize fully what the insured people can pay, who recognize the value to the insured group of prepaid medical care, who have a sense of responsibility to the insured group, and who can on a day-to-day basis enforce an observance of the agreement."

With this latter sentiment the American Medical Association Mission is in agreement, but it must be noted that part of the complaint of physicians is that while they might have been satisfied with the fee schedule at the time they earned the money, during the period of inflation their remuneration was delayed sometimes from three to six months and when they received their pay it was in yen, which were worth only a fraction of the original amount earned.

The Social Security Mission report discussed at length the objections to fee for service and raises objections on the grounds that it is claimed that fee for service payment entails a greater expense than would be necessary on a basis of salary. "The present method of paying doctors on a fee for service basis has serious drawbacks. Effort should be directed to experiment with other methods of payment."

The method of capitation payment is discussed in the report. "Each practitioner who wishes to participate in insurance practice agrees to abide by the regulations and his name is placed on the list for the information of the public. Each insured patient selects a practitioner and his name is placed on the list of the doctor of his choice. Every insurance doctor thus becomes responsible for the care of a specified number of insured persons, and he is paid a fixed amount per year (the 'capitation fee') per person on his list."

The alleged advantages of this method are discussed in the report and then certain difficulties such as the payment of specialists and a satisfactory method for payment of drugs and medicine. "The simplest method of payment is of course the use of a salary." In this connection the difficulties of determining the salary scale with allowances for differences in experience, ability and skill are discussed. The report does not refer to the inevitable deterioration of quality of service when it is rendered under salary by government employees. (The inferior and superficial medical service given to patients on the panel system are well illustrated by experiences in England.)

Ineffectiveness of the Former Japan Medical Association.—After discussing an alleged "strong sentiment in Japan for instituting a universal medical care forthwith," the Social Security Mission report states that this is considered unwise at this time. One of the objections urged is that the only way all doctors could now be brought under the plan would have to be by edict and by continued use of the fee for service method of payment. Complaint is also made that the Japan Medical Association was not able to stimulate the required sense of duty among its members. The old Japan Medical Association with its compulsory membership and complete subservience to the central government was unable to enforce service of its own members in the insurance programs even during the war. One official of a prefecture reported to us that in his district, while there were 400 doctors, all of whom were supposed to serve in the insurance program, only 40 so participated. Even in a totalitarian state professional regimentation failed. Certainly a solution of medical service by salary would mean a further deterioration of medical service to the people. The use of the salary method might reduce paper work, but would also reduce quality of service as it has everywhere else where it has seen tried.

RECOMMENDATIONS

The mission was greatly impressed with the progress which General MacArthur and his staff have made in changing over a totalitarian to a democratic state. Local and prefectural elections of officials have replaced previous appointment by central government in Tokyo, and in numerous other respects democratic methods have been installed. Democratic processes have been promulgated.

With respect to medical phases of reorganization, amazing progress has been made since the surrender by the Section of Public Health and Welfare under the guidance of General C. F. Sams. Epidemics have been controlled and the Japan Medical Association has been reorganized and is functioning. Medical education is being reorganized and inferior schools eliminated. A state system of licensure for physicians has been provided. Health centers have been organized and are functioning. Nutritional studies for the guidance of food distribution are in progress. It is planned to continue all of these activities and similar allied ones. The reorganization of the Japan Medical Association is a major step in initiating and improving quality of service of Japanese physicians. It is hoped that this association may be assisted to develop into a real medical leader.

The proper construction and function of hospital facilities is being encouraged by SCAP. However, it is very possible that the voluntary organization similar to our American Hospital Association could become an important factor in expanding and improving the hospital program. The splendid hospital system which we have in the United States is the result of individual initiative on the part of physicians, lay persons, and voluntary groups. It would, then, we believe, be in keeping with the democratization of the Japanese to make the hospital program a part of community responsibility and a matter of civic pride.

The development of voluntary agencies to assist in promoting and raising the standards of dentistry and nursing and possibly of the medical associates (technicians) might well fit into the program of SCAP.

Medical Libraries.—The medical libraries of Japan present one of the most urgent problems in medical education. Japanese physicians and teachers are anxious for help and information, of which they have received little in the last ten years. We gained the impression that some of such research efforts as are being made had not taken into consideration in their planning scientific facts already well known in other parts of the world. Research and medical education and thereby the health of the Japanese people will be greatly assisted by increasing the library facilities, notably books and magazines, in Japanese medical schools and medical associations.

Health Insurance.—The system of health insurance in Japan is so involved that it would require recommendations in far more detail than are contemplated in this report. However, we believe it possible to make several fundamental suggestions to SCAP.

We believe that wherever possible membership in the health insurance programs ("compulsory health insurance," "health insurance," and "national health insurance") should be voluntary and should arise from a general recognition on the part of the Japanese people that such protection is both desirable and economical.

We believe that the costs of any health insurance program should be primarily the responsibility of the worker and the employer, with the government entering the picture only where the financial needs are such as to require tax support.

We believe that the reconstituted Japan Medical Association might well be called on to assist in any reorganization of the health insurance programs that may be attempted.

In our view the health insurance program should not be placed under a single Ministry of Welfare as suggested by the Social Security Mission. Further, the administration and financing of these programs should be kept entirely separate from those activities concerned with public health and sanitation.

Finally, we believe that the administration of any health insurance program should be on a state (prefectural) or county (local *gun*) level, even if it should seem advisable to handle the financing on a national level. In other words, the problems of administration in the prepayment of medical care are essentially local in character and are not adaptable to national uniformity.

Remuneration of Physicians.—With respect to the method of remuneration of physicians, the fee for service method gives most promise of reasonable quality of care for the people. The improvement of performance under a fee for service program will depend on improvements in medical practice and the stimulation of professional pride in giving good service on the part of the physicians. In turn the ability to give good service will depend on the improvement of quality of medical education.

It is recognized that the production of economic wealth is not uniformly distributed over Japan and that there are many prefectures whose activities will be hampered by reason of the inability of their local economy to produce reasonable taxable revenue. In such prefectures, temporary grants-in-aid from the national government would seem to be for the present the only alternative.

Time will be required to permit the evolution of insurance and welfare plans along democratic lines. The several plans already in existence in Japan have grown up within the ideology of the Japanese people in an atmosphere of a totalitarian government which has failed. The socially desirable aspects of these plans must be conserved, but the process of reorganization will be slower and will require more careful handling than if these plans were being developed *de novo* in a democracy. Obviously, progressive changes should be planned under the general principle of democracy rather than that of socialism and totalitarianism.

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Washington Letter

(From a Special Correspondent)

April 25, 1949.

"A Voluntary Approach to a National Health Program"

With both branches of Congress again in session, following the ten day Easter recess taken by the House, legislative machinery is beginning to move on a formidable accumulation of health and medical legislation. Both in volume and variety, the problem is such that even the question of how and when to schedule public hearings is giving Congressional leaders considerable concern.

Heightening the general controversy was the publication, a few days before the remodeled national health insurance bill was scheduled to be introduced, of "A Voluntary Approach to a National Health Program" by three Catholic groups. The 20 page report was presented jointly by the Catholic Hospital Association, the Bureau of Health and Hospitals of the National Catholic Welfare Conference and the National Conference of Catholic Charities. Its foreword was written by Bishop Karl J. Alter of Toledo, Episcopal Chairman of the Bureau of Health and Hospitals and chairman of the administrative board of the Catholic Hospital Association.

The joint report opposes compulsory government health insurance, advises voluntary action supported by government aid and recommends establishment of a health division in the Federal Security Agency to administer a program which provides for: increasing the federal share in expansion of hospital construction, under the Hill-Burton Act, from the present $75,000,000 annually to $200,000,000; in addition, an annual subsidy of $25,000,000 is proposed for maintenance of hospitals in scattered and rural areas; federal grants to medical and dental schools to strengthen teaching staffs, facilitate physical expansion and support research; also establishment of loan scholarships to students; bonuses to physicians and dentists as an incentive to practice in doctor-deficient regions; federal financial assistance to nursing schools and to their students; nurses would receive stipends on condition that they agreed to serve up to three years in rural areas and "less favored states"; a similar proviso is made for medical and dental students who accept scholarship loans. Similar assistance is proposed for the purpose of raising the output of medical social workers, dietitians and other professional personnel in the medical sciences.

"The total budget for the above purposes," says the report, "would be approximately $450,000,000. A further detailed study of the specific needs in each category may modify some of the figures mentioned, but the total would be less than $500,000,000. This sum constitutes a little more than 1 per cent of the total present federal budget and would necessitate merely a proportionate increase in the existing tax rates."

Further, the three Catholic groups suggest that persons in lower income brackets—up to $5,000 a year—be permitted to deduct up to $75 from their net income tax for premiums paid to voluntary prepayment plans for medical or hospital care. They estimate that this would cost the government $1,500,000,000 annually, bringing the total cost to the two billion mark. "By contrast, the proposed compulsory insurance law would impose a new burden of approximately six billion dollars tax on wage earners," said the report.

Among Congressional supporters of national health insurance, Senators Murray, Wagner, McGrath and Chavez, and Representative Dingell are members of the Catholic church.

Prescription Bill Would Curb Authority of Food and Drug Administration

A bill that would, in effect, end the regulatory authority which the Food and Drug Administration exercises over drug prescriptions has been introduced by Representative Carl T. Durham (Democrat, North Carolina). Its purpose is to legalize the refilling of prescriptions, even for barbiturates and other potentially dangerous drugs, without requiring the consumer to obtain a new order each time from his physician. Food and Drug Administration officials said that the Durham bill, if enacted, would allow persons to refill prescriptions indefinitely without hindrance, with possible ill effects to themselves, unless state or local laws precluded such practice. The Federal Department Act has assembled data on numerous cases in which persons have become addicted to barbiturates through protracted use of a single prescription, and the agency is planning to use this material in opposing enactment of the measure. The National Association of Retail Druggists was instrumental in the bill's being introduced.

Surgeon General Denies Press Reports on Donora

On April 20 Dr. Leonard A. Scheele, Surgeon General of the U. S. Public Health Service, denied press reports that nearly 100 persons had been ill as the result of smog tests being conducted at Donora, Pa. The four day tests, which ended April 21, were an attempt to determine responsibility for the Donora disaster last fall which took 20 lives. Up to April 20, said Dr. Scheele, not 1 case of illness attributable to the tests was reported to physicians of Donora or nearby Webster.

Medical Legislation

STATE LEGISLATION

Arizona

Bill Enacted.—S. 100 has become Chapter 121 of the Laws of 1949. It amends the law relating to **osteopathic practitioners** by permitting licentiates to perform the same duties and obligations and to exercise all the same rights and privileges possessed by physicians and surgeons of other complete schools of medicine in the practice of their profession except that no osteopathic physician or surgeon shall perform major surgery unless he has had two years of surgical training in a hospital approved for such training by the board or shall demonstrate to the board equivalent training, and the board shall certify in writing to the licentiate his right to perform major surgery before engaging in any such duties.

California

Bill Introduced.—H. Res. 157 proposes the creation of a committee to ascertain, study and analyze all facts relating to **state, county and other public hospitals** and similar institutions and to report recommendations for appropriate legislation relating to such institutions.

Florida

Bills Introduced.—H. 24 proposes to require **chiropractors to renew** their licenses annually. H. 26 proposes amendments to **the chiropractic act** relating to the qualifications of applicants and the procedure for the suspension or revocation of certificates.

Bills Enacted.—S. Mem. 32 was adopted. It memorializes the Congress of the United States to enact into law certain amendments to the **Hospital Construction Act.** S. Mem. 37 was adopted April 8, 1949. It memorializes the Congress of the United States to vigorously oppose all legislation for the enactment of any form of **socialized medicine and compulsory health insurance.**

Illinois

Bill Introduced.—H. 650 proposes that an institution requiring, for the effective carrying on of its scientific or educational activities, the use of **live dogs and cats** may apply to the State Department of Public Health for a license to obtain such animals from public dog pounds. Such licenses shall expire annually but may be renewed on application to the Department of Health and the animals so obtained may be used only in the conduct of the institution's scientific or educational activities.

Kansas

Bill Enacted.—H. 145 was approved April 2, 1949. It provides, among other things, that **an autopsy** may be performed on the body of a deceased person by a physician or surgeon when so authorized in writing by the decedent during his lifetime or by the decedent's surviving husband or wife, an adult child, a parent or a brother or sister.

Michigan

Bill Introduced.—S. 247 proposes the enactment of a **hospital licensing law.**

Minnesota

Bills Enacted.—S. 706 has become Chapter 360 of the Laws of 1949. It amends the **Narcotic Drug Act** by defining the words "narcotic drugs" so as to include amidone, isoamidone and keto-bemidone. S. 1085 was approved April 9, 1949. Among other things, it requires every person licensed to practice the healing arts in any form to forward to the State Board of Health, on request, a detailed record of each **case of malignant disease** treated or seen by him professionally. It also authorizes the State Board of Health to establish a cancer statistical research service for collecting, transcribing, compiling and preserving information received by the board showing the incidence of tumors of various types, the procedures in the care of these tumors and the effectiveness of the different methods of treatment of tumors.

Missouri

Bill Introduced.—H. 253 proposes that when a physician, surgeon or pathologist shall be called on by the coroner or any magistrate of the county acting as the coroner to conduct a **postmortem examination,** the county court of said county shall be authorized to allow such physician, surgeon or pathologist to be paid out of the county treasury such fees or compensation as shall be deemed by said court to be just and reasonable.

Nevada

Bill Enacted.—A. 358 has become Chapter 322 of the Laws of 1949. It amends the law relating to the **practice of chiropractic by,** among other things, including the following definitions: Chiropractic is defined to be the science of palpating and adjusting the articulations of the human spinal column by hand only. Chiropractic-physiotherapy is defined to be the adjustment of the articulations of the human body by hand and with the use of electrical, mechanical, hygiene, and sanitary measures, which measures do not pierce or sever the body tissues.

New Hampshire

Bill Introduced.—S. 86 proposes to authorize the formation of **district departments of health.**

New Jersey

Bill Enacted.—S. J. R. 6 has become Joint Resolution No. 4, 1949. It provides for the establishment of a temporary committee to be charged with the duty of investigating, studying and evaluating present facilities and resources and future needs for the prevention, care, treatment and **rehabilitation of the chronic sick.**

New York

Bill Enacted.—A. 666 has become Chapter 460 of the Laws of 1949. It amends the mental hygiene law by designating the state department of mental hygiene as the agency of the state to **administer the mental health act** and to cooperate with the duly constituted federal authorities charged with the administration thereof.

Oregon

Bill Introduced.—H. 530 proposes the establishment of a **temperance and rehabilitation division** of the Oregon liquor control commission which shall be authorized to continue, maintain and operate a rehabilitation clinic and agency for the treatment of persons addicted to the excessive use of alcoholic beverages.

Pennsylvania

Bills Introduced.—S. 848 proposes the creation of a state **board of psychologic examiners** and defines the practice of psychology as the rendering to individual clients or the general public for fees or personal profit of any professional service requiring the application of recognized principles, methods and procedures of the science and profession of psychology such as counseling, interviewing, administration and interpretation of standardized tests of mental abilities, aptitudes and personality characteristics for the purpose of psychologic classification or evaluation or the application of such psychologic technics for purposes of re-education, guidance or readjustment. S. 870 proposes that in any **proceeding to establish paternity** the court on motion of the defendant shall order the mother, her child and the defendant to submit to one or more blood grouping tests by a duly qualified physician to determine whether or not the defendant can be excluded as being the father of the child and the results of such tests may be received in evidence but only in cases where definite exclusion of the defendant is established.

Tennessee

Bills Introduced.—H. 1511 proposes that food handlers must present to their employer a health certificate signed by a physician licensed to practice in the state showing that the person has undergone an examination including a Wassermann test for venereal disease and an x-ray photograph for tuberculosis and showing the results of the examination. H. 1512 proposes that every physician shall give or cause to be given to each pregnant woman coming under his care a Wassermann test for venereal disease at the earliest time practicable after the physician has notice of the woman's pregnant condition.

Texas

Bill Enacted.—H. Res. 127 was adopted March 29, 1949. It provides for the appointment of a committee to make investigations concerning the practices of the state board of examiners in optometry.

Coming Medical Meetings

American Medical Association, Atlantic City, June 6-10. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

American Academy of Neurology, French Lick, Indiana, French Lick Springs Hotel, June 1-3. Dr. Joe R. Brown, 19 Millard Hall, University of Minnesota, Minneapolis 14, Secretary.

American Academy of Tuberculosis Physicians, Atlantic City, Hotel Dennis, June 4. Dr. Oscar S. Levin, P. O. Box 7011, Denver 6, Colo., Secretary.

American Association of Genito-Urinary Surgeons, White Sulphur Springs, W. Va., Greenbrier Hotel, May 9-11. Dr. Norris J. Heckel, 122 S Michigan Ave., Chicago 3, Secretary.

American Association of the History of Medicine, Lexington, Ky., May 23-24. Dr. Benjamin Spector, 416 Huntington Ave., Boston 15, Secretary.

American College of Radiology, Atlantic City, Chalfonte-Haddon Hall, June 5. Mr. William C. Stronach, 20 N. Wacker Drive, Chicago 6, Secretary.

American Dermatological Association, Hot Springs, Va., May 23-26. Dr. Louis A. Brunsting, 102 Second Ave. S.W., Rochester, Minn. Secretary.

American Gastro-Enterological Association, Atlantic City, Claridge Hotel, June 3-4. Dr. Dwight L. Wilbur, 655 Sutter Street, San Francisco 2, Secretary.

American Goiter Association, Madison, Wis., Hotel Loraine, May 26-28. Dr. Thomas C. Davison, 478 Peachtree St., N.E., Atlanta 3, Ga., Secretary.

American Laryngological Association, New York, May 16-17. Dr Louis H. Clerf, 1530 Locust St., Philadelphia, Secretary

American Neurological Association, Atlantic City, June 13-15. Dr. H Houston Merritt, 710 W. 168th St., New York 32, Secretary.

American Ophthalmological Society, Hot Springs, Va., The Homestead, June 2-4. Dr. Maynard C. Wheeler, 30 W. 59th St., New York, Secretary.

American Orthopedic Association, Colorado Springs, May 18-21. Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secretary.

American Otological Society, New York, May 18-19. Dr .Gordon D. Hoople, 713 E. Genesee St., Syracuse, N. Y., Secretary.

American Pediatric Society, Atlantic City, May 5-6. Dr. Henry G. Poncher, 1819 W. Polk St., Chicago 12, Secretary.

American Proctologic Society, Columbus, Ohio, May 31-June 4. Dr. W. Wendell Green, 1838 Parkwood Ave., Toledo 2, Ohio, Secretary.

American Psychiatric Association, Montreal, Canada, May 23-27. Dr Leo H. Bartemeier, General Motors Bldg., Detroit 2, Secretary.

American Radium Society, Atlantic City, June 5. Dr. Hugh F. Hare, 605 Commonwealth Ave., Boston 15, Secretary.

American Society for Clinical Investigation, Atlantic City, May 2. Dr. Paul B. Beeson, Grady Hospital, Atlanta 3, Georgia, Secretary.

American Therapeutic Society, Atlantic City, June 2-5. Dr. Oscar B. Hunter, 915 Nineteenth St. N.W., Washington, D. C., Secretary.

American Urological Association, Los Angeles, Hotel Biltmore, May 16-19. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secretary.

Arizona State Medical Association, Tucson, May 8-10. Dr. Frank J. Milloy, 15 E. Monroe St., Phoenix, Secretary.

Association for the Study of Internal Secretions, Atlantic City, June 3-4. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary.

Association of American Physicians, Atlantic City, May 3-4. Dr. Henry M. Thomas Jr., 1201 N. Calvert St., Baltimore 2, Secretary.

California Medical Association, Los Angeles, May 8-11. Dr. L. Henry Garland, 450 Sutter St., San Francisco 8, Secretary.

Connecticut State Medical Society, New Britain, State Teachers' College, May 3-5. Dr. Creighton Barker, 258 Church St., New Haven, Secretary

Georgia, Medical Association of, Savannah, Hotel De Soto, May 10-13 Dr. Edgar D. Shanks, 478 Peachtree St., N.E., Atlanta, Secretary.

Hawaii Territorial Medical Association, Honolulu, May 5-8. Dr. Harry L. Arnold Jr., 510 S. Beretania St., Honolulu, Secretary.

Idaho State Medical Association, Sun Valley, June 20-23. Dr. Alfred M. Popma, 220 N. First St., Boise, Secretary.

Illinois State Medical Society, Chicago, Palmer House, May 16-18. Dr. Harold M. Camp, 224 S. Main St., Monmouth, Secretary.

International Congress on Rheumatic Diseases, New York, Hotel Waldorf-Astoria, May 30-June 3. Dr. Philip S. Hench, Mayo Clinic, Rochester, Minn., Chairman, American Committee.

Kansas Medical Society, Topeka, May 9-12. Dr. D. D. Vermillion, 512 New England Bldg., Topeka, Secretary.

Louisiana State Medical Society, New Orleans, May 5-7. Dr. P. T Talbot, 1430 Tulane Avenue, New Orleans 13, Secretary.

Maine Medical Association, Poland Spring, Poland Spring House, June 19-21. Dr. Frederick R. Carter, 142 Hight St., Portland 3, Secretary.

Massachusetts Medical Society, Worcester, May 24-27. Dr. H. Quimby Gallupe, 8 Fenway, Boston 15, Secretary.

Minnesota State Medical Association, St. Paul, Municipal Auditorium, May 9-11. Dr. B. B. Souster, 496 Lowry Medical Arts Bldg., St. Paul 2, Secretary.

Mississippi State Medical Association, Biloxi, May 10-12. Dr. T. M Dye, Box 295, Clarksdale, Secretary.

National Tuberculosis Association, Detroit, May 2-6. Dr. H. Stuart Willis, 1790 Broadway, New York 19, Secretary.

Nebraska State Medical Association, Omaha, Hotel Paxton, May 2-5. Dr. R. B. Adams, 1315 Sharp Building, Lincoln 8, Nebraska, Secretary.

New Hampshire Medical Society, Newcastle, Hotel Wentworth, June 14-15. Dr. Carleton R. Metcalf, 5 S. State St., Concord, Secretary.

New Mexico Medical Society, Roswell, May 5-7. Dr. H. L. January, 221 W. Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, Buffalo, Hotel Statler, May 2-6. Dr. Walter P. Anderton, 292 Madison Ave., New York 17, Secretary.

North Carolina, Medical Society of the State of, Pinehurst, The Carolina, May 9-11. Dr. Roscoe D. McMillan, P. O. Box 232, Red Springs, Secretary.

North Dakota State Medical Association, Minot, May 14-17. Dr. O. A Sedlak, 702 First Ave. S., Fargo, Secretary.

Oklahoma State Medical Association, Tulsa, Mayo Hotel, May 15-19 Mr. R. H. Graham, 210 Plaza Court Bldg., Oklahoma City, Secretary.

Rhode Island Medical Society, Providence, May 11-12. Dr. Morgan Cutts, 106 Francis St., Providence 3, Secretary.

Society for Investigative Dermatology, Atlantic City, Ritz Carlton Hotel, June 11-12. Dr. S. William Becker, 55 E. Washington St., Chicago 2, Secretary.

Society of American Bacteriologists, Cincinnati, May 15-20. Dr. John Blair, Hospital For Joint Diseases, New York, Secretary.

Society of Biological Psychiatry, Atlantic City, Chalfonte-Haddon Hall, June 12. Dr. George N. Thompson, 1136 W. Sixth St., Los Angeles, Secretary.

South Carolina Medical Association, Myrtle Beach, May 17-19. Dr. Julian P. Price, 15 W. Cheves St., Florence, Secretary.

South Dakota State Medical Association, Yankton, May 22-24. Dr. Roland G. Mayer, 22½ S. Main St., Aberdeen, Secretary.

Southeastern Surgical Congress, Biloxi, Miss., May 23-26. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Ga., Secretary.

Texas, State Medical Association of, San Antonio, May 2-5. Dr. Harold Williams, 700 Guadalupe St., Austin, Secretary.

Western Association of Industrial Physicians and Surgeons, Los Angeles, Hotel Biltmore, May 7. Dr. Christopher Leggo, Crockett, Calif., Secretary.

Western Branch of American Public Health Associaiton, Los Angeles, Hotel Biltmore, May 30-June 1. Mr. Walter S. Mangold, University of California, Berkeley, Calif., Secretary.

GOVERNMENT SERVICES

NAVY

NAVAL INTERNS WANTED

The Navy desires to procure three hundred qualified candidates to the grade of lieutenant (jg) in the Medical Corps of the Reserve to pursue intern training in civilian medical centers during the fiscal year 1950 under the auspices of the Navy Department. Applications for appointment must be filed through the Office of Naval Officer Procurement nearest the place of residence of the candidate. Successful candidates will be appointed lieutenants (jg) in the Medical Corps of the Naval Reserve and ordered to active duty at the institution with which they have contracted for the year of training, and they will be required to serve on active duty for two years beyond the date of completion of intern training. Candidates must be graduates or enrolled in the fourth year class of an approved medical school and otherwise meet the standards for appointment in the Naval Medical Reserve. Furthermore, they must have contracted for a rotating internship of twelve months for a year in an approved civilian hospital.

An additional two hundred internships will be provided in sixteen Naval hospitals during the fiscal year. These candidates have already been selected, and all quotas for this particular program for placements in Naval hospitals have been filled. A similar program will be conducted next fall for the selection of interns for training during the fiscal year 1951.

BONE BANKS

The Navy's Bureau of Medicine and Surgery will set up Bone Banks in some of its hospitals, according to plans announced recently by Rear Admiral C. A. Swanson, the Surgeon General. "There is sufficient evidence that Bone Banks are now justifiable as a therapeutic provision for Naval hospitals," he declared. Admiral Swanson added that the Navy is currently studying which Naval hospitals should operate such banks. Considered a long step forward in bone grafting, the plan will be made possible by rapidly improving methods of freezing and preserving bone. His announcement was based on a report by Lieut. George W. Hyatt, Navy Medical Corps.

Frozen human bone has been preserved for as long as 308 days in an ordinary ice cream cabinet and then used successfully in bone graft operations. Bone banks visited by Dr. Hyatt during his investigation and study, in addition to the Lahey Clinic of the New England Baptist Hospital, included those at New York Orthopedic Hospital and Dispensary, Boston City Hospital, Mayo Clinic, Massachusetts General Hospital, Campbell Clinic and University of Iowa Children's Hospital.

RECALLED TO ACTIVE DUTY

The following reserve medical officers have been nominated for voluntary recall to active duty: Captain William L. Schafer Jr. of Alexander, Va., and Commanders Robert Z. Collings Jr. of Highland Park, Ill.; Arthur L. Kelly of Chicago, and Bryce A. Newbaker of Washington, D. C.

Lieutenant Merrill E. Speelman of Columbus, Ohio, has been voluntarily recalled to active duty and nominated as a resident in urology at the Naval Hospital in Philadelphia.

FIRST ACTIVE DUTY IN THE RESERVE

The following lieutenants (jg) have been nominated for their first active duty in the Medical Corps Reserve: Paul M. Arnesen, Brooklyn, to a residency in surgery at the Naval Hospital, St. Albans, N. Y.; George E. Cruft, Virginia, Ill., to the Naval Station, New Orleans; Henry H. Fetterman, Allentown, Pa., to the Naval Hospital, Quantico, Va.; Dudley P. Jackson, Bedford, Va., to the Naval Medical Research Institute, Bethesda, Md.

NOMINATED FOR POSTGRADUATE INSTRUCTION

The following medical officers have been nominated for courses in postgraduate instruction under the Graduate Medical Training Program: Lieut. Comdr. Robert A. Conrad Jr., to instruction in radiobiologic research at Argonne National Laboratory, Chicago; Lieut. Comdr. Wayne W. Waters, to a residency in general surgery at the Naval Hospital, Long Beach, Calif.; Lieut. (jg) Frank P. Hammon, to a residency in obstetrics and Gynecology at the Naval Hospital, Oakland, Calif.; Lieut. (jg) Robert W. O'Brien, to a residency in surgery at the Naval Hospital, Chelsea, Mass.

NEW REGULAR OFFICERS

The following reserve medical officers have been appointed to the Regular Navy Medical Corps: Capt. Richard B. Phillips, Boston, Naval Air Station, Oakland, Calif.; Lieut. Comdr. William Manson, Sidney, New York, George F. Geisinger Memorial Hospital, Danville, Va.; Lieut. Sidney D. Bond Jr., Crawfordsville, Ark., Naval Air Station, Memphis, Tenn., and Lieut. (jg) Eugene C. Stone Jr., Newton, Mass., Naval Submarine Base, Pearl Harbor, Hawaii.

PERSONALS

Lieut. (jg) Paul H. Pennypacker, M.C.R., has been nominated for graduate instruction as a resident in internal medicine at the Naval Hospital in Philadelphia.

Lieut. Comdr. Carl W. Deonier of Commerce, Texas, has transferred from active reserve status to the Medical Corps of the Regular Navy.

ADDRESS BY DR. NESBIT

The combined staffs of the units of the Naval Medical Center, Bethesda, Md., were addressed April 12 by Dr. Reed Nesbit, professor of urology, University of Michigan School of Medicine, Ann Arbor, on "Pitfalls in the Diagnosis of Hydronephrosis."

AIR FORCE

AIR FORCE SETS HEALTH RECORD IN 1948

The U. S. Air Force had its "healthiest" year in 1948, according to a preliminary report made by Major General Malcolm C. Grow, Air Surgeon, to the Secretary of the Air Force.

The common respiratory diseases, usually a major cause of hospitalization, accounted for less than one-third of the total admissions at the peak of the respiratory disease season during January and February. Less than 20 per cent of those hospitalized during the rest of the year were in that category.

The venereal disease rate continued a decline begun in 1947 and reached a new low in 1948. Less than 9 man-days per thousand troops per month were lost during 1948 for hospitalization for venereal disease. This is a considerable decrease from 102 man days per thousand troops per month in 1939.

PUBLIC HEALTH SERVICE

STATEMENT ON THE TOXICITY OF DDT

Following a meeting of representatives of the Department of Agriculture, Department of the Navy, Federal Security Agency and the Pan American Sanitary Bureau, the following statement was released concerning the use of DDT in national and international health and economy:

"A number of statements have been published during the last several days which have misled and alarmed the public concerning the hazards of using DDT as an insecticide.

"DDT is a very valuable insecticide which has contributed materially to the general welfare of the world. It has been used with marked success in both the control and prevention of such insect-borne diseases as malaria and typhus and of insects which are destructive to crops and injurious to livestock and infect homes.

"It is well recognized that DDT, like other insecticides, is a poison. This fact has been given full consideration in making recommendations for its use. There is no evidence that the use of DDT in accordance with the recommendations of the various Federal agencies has ever caused human sickness due to the DDT itself. This is despite the fact that thousands of tons have been used annually for the past four or five years in the home and for crop and animal protection. However, minor toxic symptoms may be produced by kerosene and various solvents used in DDT and practically all other insecticidal mixtures.

"Statements that DDT is responsible for causing the so-called 'virus X disease' of man and 'X disease' of cattle are totally without foundation. Both of these diseases were recognized before the utilization of DDT as an insecticide.

"The Food and Drug Administration has not prohibited the use of DDT in spraying dairy cattle and barns. The Federal Food, Drug and Cosmetic Act requires the Food and Drug Administration to insure that the food supply of the American people does not contain any poisonous or deleterious substance that is not necessary in the production of the food. Studies by the Bureau of Entomology and Plant Quarantine have shown that DDT when used on dairy cattle or when present on fodder fed to dairy cattle may appear in the milk. They also say that DDT in small quantities can be detected sometimes in milk following ordinary use of the insecticide for fly control in dairy barns. Because of the vital importance of milk in the diet of infants, children and people of all ages, it is essential that proper precautions be taken to protect the milk supply. Modifications of the recommendation made by the Department of Agriculture on the use of DDT on dairy cattle were made merely as a precautionary measure.

"There is no justification for public alarm as to the safety of the milk supply from the standpoint of DDT contamination."

INDUSTRIAL HYGIENE STATION IN UTAH

The first industrial hygiene field station west of the Mississippi, now being set up in Salt Lake City, will soon be ready to give engineering and laboratory help to Western states for aiding manufacturers in bettering their plant working environments, Dr. Leonard A. Scheele, Surgeon General of the Public Health Service, has announced. When the new field station goes into full operation in June, it will be able to make available to state industrial hygiene agencies an analysis of the atmospheric contaminants of the various working environments in the West.

The field station will be located at the University of Utah, on the outskirts of Salt Lake City, where graduate students in industrial hygiene research may use the field station's laboratories and the station's staff members may assist the university in presenting industrial hygiene to students. The station will be expanded later to give state industrial hygiene departments the benefit of the service's knowledge in industrial medicine and nursing care, as well as engineering and laboratory service.

"Setting up this station is another step in our attack on the 500 million man-days per year of absenteeism from sickness in this country," Dr. Scheele said. "The West, with 30 per cent of the nation's labor force, can do away with a great amount of that toll."

CANCER TEACHING GRANTS

The Surgeon General has approved a total of $451,622 for cancer teaching and control grants to assist nongovernment institutions in the expansion of cancer programs. The grants were recommended by the National Advisory Cancer Council at a recent meeting. Among the grants was a new teaching grant award of $23,339.50 to Vanderbilt University School of Medicine, Nashville, Tenn.; eight other medical schools received $199,898 in continuation grants. Three new control grants amounting to $69,114 will finance a state environmental cancer study in Pennsylvania and two cancer diagnostic tests projects, one at the University of California and one at the University of Colorado.

PERSONAL

Dr. Bernardo A. Houssay of Argentina, who is working as a special research fellow at the National Institutes of Health at Bethesda, Md., has been elected an honorary member of the Washington Academy of Sciences. Dr. Houssay, a Nobel Prize winner, delivered an address on unsolved problems of diabetes.

MISCELLANEOUS

COMMITTEE SURVEYS FACILITIES FOR RESEARCH IN WEST

Twenty members of the Committee on Medical Sciences of the Research and Development Board left Washington by military plane on April 7 to survey medical military facilities for research in the Western part of the United States. The committee has made two previous field trips, one covering the Northeastern section of the country, the other covering the Southeastern and Central Southern states. The committee's itinerary includes Glenview, Ill.; Denver; Berkeley, Calif.; Mare Island, Calif., and Los Angeles. The Committee on Medical Sciences is responsible for a continuous survey, analysis and evaluation of research and development activities in medicine, both within and without the National Military Establishment.

Among those making the tour were Dr. Francis G. Blake, chairman; Dr. Lowell T. Coggeshall, deputy chairman; Dr. John S. Lockwood; Dr. Wallace O. Fenn; Brig. General G. E. Armstrong, U.S.A.; Dr. Joseph F. Sadusk Jr., executive director; Dr. James E. McCormack, deputy executive director; Dr. William H. Fitzpatrick, panel director; Comdr. E. E. Metcalfe, M.C., U.S.N., Navy secretary; Major Hal Bridges, M.C., U.S.A., Army secretary, and Major James B. Nuttall, M.C., U.S.A.F., Air Force secretary.

BROOKHAVEN NATIONAL LABORATORY

A nuclear reactor (atomic pile) and auxiliary laboratories are nearing completion at Brookhaven National Laboratory, Upton, Long Island, N. Y. The reactor has been designed to serve the needs of the scientific, industrial and engineering institutions in the northeastern part of the United States and should be able to support an extensive research program. Dr. William M. Hale, head of the department of bacteriology, University of Iowa College of Medicine, Iowa City, has resigned in order to become head of the division of bacteriology and virology in the department of medicine of the Brookhaven National Laboratory, which is one of the projects of the U. S. Atomic Energy Commission.

MORE ATOMIC RESEARCH PROJECTS

The Atomic Energy Commission on April 5 announced that twenty-one research projects on biology and medicine will be financed by the commission on contract with sixteen universities and two hospitals, thus making a total of seventy-eight research studies currently being financed by the commission in addition to the work being done at the major laboratories of the atomic energy program.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

COLORADO

Radio Program Wins Award.—The medical series "Knave of Hearts," which ran for 18 weeks beginning May 2, 1948, over Station KLZ, Denver, was given the "small station" Alfred I. duPont Award for meritorious service on radio March 12. The program idea originated with Mr. Hugh B. Terry, manager of KLZ, and had the support of the Colorado State Medical Society, which named a special committee of cardiologists to work with the station staff in developing the series. This committee was under the chairmanship of Dr. Edgar Durbin, Denver. Mr. Terry was elected by the House of Delegates of the Colorado State Medical Society in September 1948 to receive the society's certificate of service awarded annually to a nonmember for distinguished public service.

Personals.—Dr. James S. Cullyford, Denver, recently received the "Order of Orange Nassau" medal of the Netherlands Government for his service in the medical care and evacuation of Netherland's political prisoners from the concentration camps of Buchenwald and Dachau. Dr. Cullyford was public health officer with the Twelfth Army Group in Europe and is now chief of medical service for the Veterans Administration in Colorado.——Dr. Alfred R. Masten, former director of tuberculosis control for the Colorado State Division of Public Health, returned to that post March 1, having resigned from a similar position with the Oregon State Board of Health.

DISTRICT OF COLUMBIA

Study in Environment and Cancer.—The effect of man's environment on his chance of getting cancer will be studied as a new $60,000 project of the Georgetown University School of Medicine under the direction of scientists of the National Cancer Institute, Bethesda, Md. Dr. Wilhelm Hueper, an institute scientist, will direct the project.

Research on Asthma.—A grant of $36,861 to permit studies of the nerve supply of the human lung has been made to the department of surgery of George Washington University Medical School by the Veterans Administration. The grant will provide funds for studies with particular reference to the surgical treatment of asthma. Studies will be continued over a two year period.

Physical Medicine Appointment.—Dr. Isadore Levin has been appointed associate professor of medicine, in charge of the department of physical medicine on the faculty of Georgetown University School of Medicine, Washington. Dr. Levin was in the United States Public Health Service from 1931 through 1933, and was in general practice from 1933 to 1936 in this city. He has been specializing in physical medicine since 1936 and has been director of the physical medicine department at Doctors Hospital since its opening in 1940.

ILLINOIS

Illinois Alumni Luncheon.—At the annual luncheon of the University of Illinois Medical Alumni Association May 17 at the Palmer House, Dr. Andrew C. Ivy, vice president of the University of Illinois in charge of the Chicago Professional Colleges, and Dr. John B. Youmans, dean of the College of Medicine, will speak. The luncheon will be held in conjunction with the annual meeting of the Illinois Medical Society May 16-18. Classes which will hold reunions include those of 1899, 1904, 1909, 1914, 1924, 1929 and 1939. Reservations for the luncheon are $4 per plate. Because of the limited seating capacity, all reservations must be mailed in advance to Dr. Streicher at the University of Illinois, 1853 W. Polk St., Chicago 12.

Chicago

Cancer Research.—The Jennie Rubenstein Memorial Association of Chicago has presented a check for $25,000 to Dr. Ludvig Hektoen to further research on cancer at the Chicago Tumor Institute, of which Dr. Hektoen is president.

Continue Virus Study.—An additional grant of $25,655 from the March of Dimes enables University of Chicago scientists to continue study of the chemical and metabolic processes by which viruses reproduce at the expense of the host cells. The study was begun in 1947 with the aid of the National Foundation for Infantile Paralysis, under the direction of E. A. Evans Jr., Ph.D. Scientists are using viruses other than that of poliomyelitis for the study, but the ultimate aim is to apply the knowledge gained to the growth processes of poliomyelitis virus.

Dr. Dragstedt to Give the Zeit Lecture.—On May 6 at 5 p. m. Dr. Lester R. Dragstedt will speak on "Physiological Principles of Surgery of the Pancreas" at Thorne Hall of Northwestern University. This is the Frederick Robert Zeit Lecture sponsored by the Xi Chapter of Alpha Kappa Kappa. All physicians and surgeons are invited to attend.

Postgraduate Courses in Pediatrics.—The Michael Reese Hospital Postgraduate School will present a course, Recent Advances in Pediatrics, in two sections: Section 1, May 16-21, The Full-Term and Premature Infant in Health and Disease, and Section 2, May 23-28, Diagnostic and Therapeutic Measures in General Pediatrics. Registrations will be accepted for either or both sections. Size of classes is limited, and tuition is $50 per section. For information address Dr. Samuel Soskin, dean, Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16.

Radioisotope Unit at Northwestern.—A radioisotope unit which is constituted for instruction, research and therapy has been established at Northwestern University Medical School. Equipment for the unit's laboratories is being financed with a grant in excess of $27,000 from the Atomic Energy Commission through the Office of Naval Research. In addition to providing instruments and other facilities for research involving the use of radioisotopes, the medical school will introduce several new courses into its undergraduate curriculum, and it has formulated a proposed program of postgraduate medical instruction in the utilization of radioactive elements. The third phase of the unit's operations, that of patient therapy, will involve the university's four affiliated hospitals, Wesley Memorial, Passavant Memorial, Evanston, and Children's Memorial, and one of its cooperating institutions, St. Luke's Hospital. For all three operations, the Atomic Energy Commission will supply the radioactive materials from Oak Ridge, Tenn. Radioactive elements will also be made available to the medical school's Montgomery Ward Clinics. Supervised by John A. D. Cooper, Ph.D., assistant professor of chemistry, the laboratory is situated in the Montgomery Ward Building in the university's medical center on the Chicago campus. One of the clinic rooms is being converted into a "hot laboratory" with equipment for handling and processing of multimillicurie shipments of radioactive elements. Personnel of the radioisotope unit is made up of seven men on the faculty of the medical school. Unit chairman is Dr. Howard L. Alt, associate professor of medicine. Others are Dr. Earl E. Barth, Dr. Cooper, Chester J. Farmer, M.A., Dr. Smith Freeman, Dr. George V. LeRoy and Dr. Ray S. Snider. Drs. Alt, Barth, Cooper and Freeman and Mr. Farmer are participating institution members of the Argonne Laboratory. Dr. Snider is consultant to the biologic division at Argonne.

KENTUCKY

Mobile X-Ray Unit Examinations.—Since the $32,000 mobile x-ray unit, donated to the state department of health by the Elks organization of Kentucky, was placed in service in January 1947, more than 120,000 Kentuckians have been given roentgen examinations of the chest without charge. About 3,000 cases of active tuberculosis have been discovered.

Personal.—Dr. Cathryn C. Rotondo, Louisville, has been appointed director of the Division of Maternal and Child Health of the state health department to succeed Dr. Alice D. Chenoweth, Louisville, who resigned in December. Dr. Rotondo received her medical degree from the University of Louisville School of Medicine in 1942.

Cancer Grant to University of Louisville.—A research grant of $4,860 has been awarded the University of Louisville School of Medicine by the Kentucky Division of the American Cancer Society. This grant, the first ever given by this society to the University of Louisville, will be used by Edmund K. Hall, D.Sc., associate professor of anatomy of the medical school, to conduct experiments of animal growth for one year.

Meeting of Tuberculosis Association.—The annual meeting of the Kentucky Tuberculosis Association was held April 6 in Louisville. Frank W. Webster, secretary-treasurer of the Southern Tuberculosis Conference, spoke on "Using the Facilities at Hand in Kentucky to Fight Tuberculosis." Other speakers included A. M. Lyon, state commissioner of welfare, Dr. Earl R. Gernert, radiologist, and Mr. Noble J. Swearingen, field secretary of the Kentucky Tuberculosis Association. Dr. L. E. Smith, executive secretary of the association, presented Mrs. Bert R. Smith, Bowling Green, with the annual loyalty award given to the person making the greatest voluntary contribution to the antituberculosis fight in the state. Dr. George S. Watson was reelected president.

MARYLAND

Sesquicentennial of Medical and Chirurgical Faculty.—The Medical and Chirurgical Faculty of the State of Maryland observed its sesquicentennial at the annual meeting in Baltimore April 25-27. Guest speakers on the scientific program included:

W. Edward Gallie, Toronto, Canada, Injuries of the First and Second Cervical Vertebrae.
Howard K. Gray, Rochester, Minn., The John M. T. Finny Fund Lecture, Some Problems in the Surgery of the Biliary Tract.
Joseph E. Smadel, Washington, D. C., The Standish McCleary Fund Lecture.

Participants in a panel on Neoplasms of the Chest were Drs. Edward M. Kent, Pittsburgh; Edgar W. Davis, Washington, D. C., and John W. Strieder, Boston. A series of twenty-nine round table luncheons were held.

MASSACHUSETTS

Walter P. Bowers Memorial Building.—A memorial gifts committee for the Walter P. Bowers Memorial building, a three story modern plant of 75 beds in Clinton, is engaged in completing a fund campaign. The sum of $275,000 is essential to take advantage of the federal grant of about $225,000, which will be used to complete the new Clinton Hospital. Dr. Bowers founded the Clinton Hospital in 1889 and served as its first president for fifty years. Work on the new building had started before Dr. Bowers died in 1947, but the original building fund proved inadequate. Dr. Bowers, who was the first editor of the *New England Journal of Medicine,* left $100,000 as his final contribution to the welfare of the communities that he had spent his life in serving. Dr. Henry F. Bigelow of Clinton is chairman of the committee.

Nashoba Associated Boards of Health.—Referred to as an example of "local and individual initiative" in a recent Boston editorial, the Nashoba Associated Boards of Health has been attracting wide citizen and professional interest in Massachusetts. The association is a local health unit organized as a demonstration eighteen years ago by the Commonwealth Fund with the hope that at the end of the five year trial period some of the member towns would decide to support the project on their own. As evidence of its success ten towns voted at the close of the experiment in 1935 to support the unit team of a medical director, director of nursing, sanitarian, laboratory technician and clerks. Nine towns have kept the project going even through the war years with limited services available. In 1948 a medical director and a director of nursing were employed, and the sanitarian returned from his duties in the army. Their immediate objective became that of enlarging the unit, because it was serving only a population of 16,500, far below the desired number of 35,000. A concentrated program of public relations and health education was begun in October. The joint staffs of the unit and the District Health Office of the Massachusetts Department of Public Health worked together to accomplish their goal and have made considerable progress. As of July 1, 25,000 citizens in the Nashoba Valley will have the protection and services of a full time public health team by belonging to the Nashoba Associated Boards of Health. This represents a 50 per cent gain in population served. The essence of this demonstration has been caught in a statement made by Dr. Hugh R. Leavell, president of the Massachusetts Central Health Council, who said, "We feel that this demonstration of cooperation of the towns in that area toward better living is indeed a source of great hope for the future health of our citizens."

MICHIGAN

Hospital Clinic.—The Bon Secours Hospital, Grosse Pointe, will hold a Clinic Day May 24. Among the subjects under discussion will be exfoliative cytology, diabetes, cancer and jaundice. The chairmen of the program will be Drs. Carl W. Swanson, Donald G. Ross and Ira G. Downer.

Ambulance for Premature Babies.—An ambulance especially equipped for premature babies was put into service in Detroit during April. It was purchased by the state, which is lending the vehicle to the city of Detroit. It will be used to remove premature babies from a home, or from a hospital that is not equipped to give the specialized care they require, to a hospital that has facilities for their special care. The ambulance will be available to all Detroit hospitals and physicians. According to Dr. Joseph G. Molner, deputy commissioner of the Detroit Department of Health, so far this year 383 babies have died and 163 of these deaths were from causes related to prematurity.

MINNESOTA

State Medical Meeting at St. Paul.—The annual session of the Minnesota State Medical Association will take place May 9-11 at the Municipal Auditorium in St. Paul. The guest speakers will be Drs. Ralph O. Rychener, Memphis, Tenn.; Howard J. Holloway, Chicago; John H. Randall and H. Dabney Kerr, both of Iowa City; Leonard W. Larson, Bismarck, N. D.; Robert B. Lawson, Winston-Salem, N. C.; Carl P. Huber, Indianapolis; Ralph E. Campbell, Madison, Wis.; Ronald R. Greene, Louis R. Limarzi and Walter L. Palmer, all of Chicago; Gustaf E. Lindskog, New Haven, Conn., and Roy Glenwood Spurling, Louisville, Ky. The program includes a symposium on Orthopedic and Fracture Surgery and another on Research Problems; demonstrations, scientific films and a series of twenty-one round table luncheons. The annual banquet will be held at 7 p. m. May 10 at the Hotel St. Paul; candidates for the Minnesota Fifty Club will be honor guests. The Woman's Auxiliary to the association will meet at the Hotel St. Paul, and several state societies have planned luncheon and dinner meetings. The Russell D. Carman Memorial Lecture will be delivered Monday afternoon by Dr. Kerr on "Roentgen Diagnosis of Lesions of the Urinary Tract." The Arthur H. Sanford Lectureship in Pathology will be presented by Dr. Larson on "The Relation of the Pathologist to the General Practitioner." Scientific and technical exhibits will be on display.

NEW YORK

George Birney Broad Lectureship.—Dr. Arthur T. Hertig of the Harvard Medical School, Boston, will deliver the George Birney Broad Lectureship at Syracuse University College of Medicine May 6 at 8:30 p. m. on the "Earliest Known Stages of Normal and Abnormal Human Development."

Drive Against Infant Diarrhea.—The state's leading public health agencies have launched an intensive campaign against infant diarrhea in New York. Between 1942 and 1947 the state department of health investigated twenty-eight outbreaks of diarrhea of the new born in hospital nurseries, from which 618 babies suffered illness and 62 died. During last year the Medical Society of the State of New York, the New York State Department of Health and the hospitals of the state made a united effort to revise the care of newborn infants and provide better facilities in all hospitals. A new regulation, effective Jan. 1, 1949, was written into the sanitary code of the state. Changes in the care of infants include simple cleansing with baby oil instead of the conventional daily bath with soap and water. Mothers will be asked to do more for the baby themselves, and hospitals will reduce the number of visitors in the maternity sections, or even prohibit them altogether. These are all part of the changes in rearing procedure planned to safeguard the baby.

New York City

Chest Conference at Hospital.—Dr. Richard H. Sweet, Boston, will speak on "Cancer of the Esophagus" at the annual chest conference held May 21 at St. John's Hospital, Brooklyn. Other speakers will be Drs. Merrill N. Foote, Elgie K. Johnson, Herbert C. Maier and Lew A. Hochberg.

Dr. Rappleye Appointed a Vice President at Columbia.—Dr. Willard C. Rappleye, dean of Columbia University, College of Physicians and Surgeons, was recently appointed vice president in charge of medical affairs at Columbia University. General Eisenhower's announcement specified that this position shall be held by the dean of the faculty of medicine. The creation of the new office, among others, resulted from a survey begun nearly two years ago.

Forum for the Study and Prevention of Crime.—Columbia University will hold a forum for the Study and Prevention of Crime at its McMillin Theater May 7. The purpose is to enlighten the public on the social, biologic and psychologic aspects of crime. The program is as follows:

Frederick MacCurdy, Albany, Crime and Mental Hygiene.
George Dession, New Haven, Conn., Law Breakers in a Changing Society.
Mr. Austin H. MacCormick, New York, The Prison's Role in Crime Prevention.
Alfred C. Kinsey, Bloomington, Ind., Sex Offenders.
David Abrahamsen, New York, Family Tension, Basic Cause of Criminal Behavior.

The fee is $2.

Expand Home Medical Care.—The program, started in five municipal institutions last November to enable a patient to receive full clinical care at home after preliminary treatment at a hospital, will be extended to eight other institutions in May. The program was begun to ease the overcrowded conditions in city hospitals. Three hundred and twenty-three patients are now receiving its benefits. A similar plan for tuberculous patients at Triboro Hospital in Queens has also been approved. According to Dr. Marcus D. Kogel, commissioner of hospitals, the department's goal for June 1 is for 500 patients on home care. The cost of treating a patient at a municipal hospital is $10 a day, while the cost for a home care patient is estimated at $2.50 to $3 a day.

PENNSYLVANIA

Diphtheria Closes Schools.—The *New York Times* reported April 12 that all schools in Fountain Hill, a suburb of Bethlehem, were closed "until further notice" because of an outbreak of diphtheria, comprising 14 cases reported in the Bethlehem area and 7 in the St. Luke's Hospital, Fountain Hill. One death occurred in Salisbury Township adjoining Fountain Hill and 1 in nearby Hellertown.

Philadelphia

Lecture on Congestive Heart Failure.—The Mount Sinai Hospital Lecture will be given by Dr. Louis Leiter, New York, on "Pathological Physiology of the Kidney in Chronic Congestive Heart Failure" May 8 at 9 p. m. in the Nurses Home Auditorium.

Society Centennial.—The Philadelphia County Medical Society will hold its centennial dinner May 11 in the ballroom of the Bellevue-Stratford Hotel, 6: 30 p. m. The chief speaker will be the Honorable Lister Hill, U. S. Senator from Alabama and a member of the committee that deals with social and health legislation.

Strittmatter Award to Dr. MacFarlane.—The Philadelphia County Medical Society at a meeting April 13 presented the Strittmatter Award to Dr. Catharine MacFarlane, professor emeritus of gynecology at Woman's Medical College of Pennsylvania. Other speakers at the meeting were Drs. Stanley P. Reimann, who spoke on "Cancer Research," and Lewis C. Scheffey, whose subject was "Cancer Detection Clinics."

Fellowship in Endocrinology.—A fellowship in obstetric and gynecologic endocrinology will be available at Jefferson Medical College and Hospital on or about May 1 under the direction of Dr. Abraham E. Rakoff, assistant professor. The fellowship is available to doctors who have had at least one year or its equivalent of postgraduate training in obstetrics and gynecology. Applicants should communicate with Dr. Lewis C. Scheffey, professor of obstetrics and gynecology, Jefferson Medical College and Hospital, Philadelphia 7.

WASHINGTON

Tacoma Roentgen Examination Program.—Tacoma is reportedly the first of five cities to reach its goal of 100 per cent in the recent roentgen examination survey. On March 3, 73,736 chest films had been taken, all but 539 by the survey team. The four U. S. Public Health Service physicians who read the films have reported 1,508 abnormal conditions.

WEST VIRGINIA

Open Branch Public Health Office.—A branch office of public health district no. 2 was opened at East Rainelle, in Greenbrier County early in March, with the full support of the Rotary Club and the Moose Club. The quarters, which are located on the second floor of the Moose Club, will be in charge of Mrs. Halley Mae Thompson, R.N. The office will be open to the public on each Friday afternoon and on the mornings of the second and fourth Saturday. Plans are being made to schedule child health conferences, food handlers' schools and provide other health services in space provided by the Veterans of Foreign Wars in its new building at Rupert, also in Greenbrier County.

Meeting on Anthracosilicosis.—West Virginia members of the American College of Chest Physicians have arranged a program on "Anthracosilicosis" for May 19 at the Daniel Boone Hotel in Charleston beginning at 10 a. m. Speakers on the program will include Drs. Burgess T. Gordon, Hurley L. Motley, Peter A. Theodos and Leonard P. Lang, all on the staff of the Jefferson Medical College Hospital in Philadelphia. The speakers have been making a study of anthracosilicosis, especially among anthracite miners. The program will appeal especially to doctors engaged in practice in coal mining communities. The committee has extended a general invitation to all West Virginia doctors to be present at the meeting.

HAWAII

Annual Meeting of Medical Association.—The Hawaii Territorial Medical Association will hold its annual meeting May 5-8 at the Mabel Smyth Building, Honolulu, under the presidency of Dr. Joseph Palma, Honolulu. Guest speakers will be Drs. Hugh McCulloch, St. Louis; George T. Pack, New York; Hale F. Shirley, San Francisco, and Curtice Rosser, Dallas, Texas. Breakfast round tables will take place at the Pacific Club Saturday morning. The annual exhibit of the Hawaii Physicians' Art Association will be held in the Honolulu County Medical Library during the meeting.

Hansen's Disease Decreasing.—In 1865 Hawaii had an estimated 2,000 to 4,000 cases of leprosy in a population of only 150,000 persons. Today the census has dropped to 293 active cases, although the population has increased to nearly 500,000. Since 1865 the law has required that all persons with leprosy be segregated in a leprosarium. The territory maintains a receiving center, Kalihi Hospital in Honolulu, and a leprosarium, Kalaupapa, on 8,000 acres of a peninsula on the island of Molokai. On Nov. 30, 1948 there were 30 patients at Kalihi Hospital, while eighteen years ago there were 60 new cases a year. Kalaupapa now has 263 leprous patients.

GENERAL

Proctologic Society Meeting.—The American Proctologic Society will celebrate its fiftieth anniversary at its meeting May 31-June 4 at the Deshler-Wallick Hotel in Columbus, Ohio, under the presidency of Dr. Albert G. Schutte, Milwaukee. About twenty members of the Section of Proctology of the Royal Society of Medicine will attend. The British guests who are presenting papers on the program will be: Mr. A. Lawrence Abel, Mr. W. B. Gabriel, M. C. Naunton Morgan, Dr. Cuthbert Dukes, Mr. R. W. Raven, Mr. A. Dickson Wright and Mr. E. C. B. Butler. Other speakers appearing by invitation will be Drs. Charles W. Mayo and John S. Lundy of Rochester, Minn., and Lyon H. Appleby of Vancouver, B. C.

Scholarships for Medical Library Students.—The Medical Library Association is sponsoring two scholarships of $150 each for students taking the medical library course at the Columbia University School of Library Service during the summer quarter of 1949. Funds for this purpose have come from a gift made by the Lilly Research Laboratories. Preference will be given to students giving evidence of an intention to stay in medical library work and who seem to have possibilities of making a real contribution. It is expected that the recipient either has or will have a library school degree at the end of the course. Application should be made to the Columbia University School of Library Service, New York 27.

Science Writing Award.—The third American Association for the Advancement of Science-George Westinghouse Science Writing Award for magazine and newspaper science writing will be presented December 28 to the writer who presents the most distinguished work in interpreting science to the American public. Only entries appearing in magazines published within the continental limits of the United States are eligible. Entries will be judged on initiative, originality, scientific accuracy and clarity. All entries must be postmarked on or before October 8. Entry blanks and additional information may be obtained by writing the Chairman, Managing Committee, AAAS-George Westinghouse Science Writing Awards, 1515 Massachusetts Avenue, N. W., Washington 5, D. C. Separate $1,000 awards are made for newspaper and magazine science writing.

National Hearing Week.—The 123 local chapters of the American Hearing Society throughout the country will conduct educational campaigns in their communities during National Hearing Week May 8-14, by calling attention to the ways in which those who suffer from hearing defects can be helped. Approximately 15,000,000 Americans have impaired hearing, and this figure includes 3,000,000 children. Many of these children can be saved from becoming permanently hard of hearing if the causes are discovered and treatment given in time. The American Hearing Society, whose headquarters are at 817 Fourteenth Street, N. W., in Washington, D. C., is a member of the National Health Council and the National Social Welfare Assembly. Its program is supported by voluntary contributions from the public.

American Academy of Neurology.—The American Academy of Neurology was recently established to further and encourage the practice of clinical neurology and to stimulate the teaching of neurology and allied sciences. Active membership is open to every physician who has been certified in neurology or in both neurology and psychiatry. Junior membership is available to physicians engaged in postgraduate study in neurology or who are awaiting certification in neurology.

Associate membership is open to those not certified in neurology, but whose interests are in fields related to neurology. Its present total membership is approximately five hundred. The first scientific meeting of the academy will be held at French Lick Springs, Indiana, June 1-3. The president of the Academy is Dr. A. B. Baker of Minneapolis; the vice president, Dr. Pearce Bailey of Washington, D. C., and the secretary-treasurer, Dr. Joe R. Brown, whose address is 19 Millard Hall, University of Minnesota, Minneapolis 14.

American Orthopaedic Association Meeting.—The annual meeting of the American Orthopaedic Association will be held at the Broadmoor, Colorado Springs, May 18-21 under the presidency of Dr. Ralph K. Ghormley, Rochester, Minn. Those presenting papers by invitation include:

James V. Luck, Los Angeles, Osteochondromas Arising from Articular Cartilage.
Lieut. Col. Harold S. McBurney, Denver, Orthopedic Treatment of Tuberculosis of the Spine in a Military Tuberculosis Center.
Harold D. Palmer, Denver, Giant Cell Tumors in Children.
John Z. Bowers, Washington, D. C., Effects of Radioactivity on Bone.
John R. Moritz, Sun Valley, Idaho, Ski Injuries—Trauma of Lower Extremities Resulting from Torsion Strain.

Discussion will follow the presentation of each paper. The Wednesday afternoon program will be devoted to a conference on the training of orthopedists, which has been arranged by the Joint Committee on Post-Graduate Education of the American Orthopaedic Association and the American Academy of Orthopaedic Surgeons.

Annual Meetings of Urologists.—The American Urological Association will hold its annual meeting at the Biltmore Hotel, Los Angeles, May 16-19 under the presidency of Dr. Charles C. Higgins, Cleveland. The program includes a symposium on Antibiotics Tuesday afternoon and another on Ureterosigmoidostomy and Cystectomy on Wednesday afternoon. The symposium on Carcinoma of the Prostate involves the essay prize awards for 1949; these were won by Drs. Perry B. Hudson and W. W. S. Butler III, Baltimore, for their "Study of the Enzyme Acid Phosphatase and Its Possible Role in Intermediary Carbohydrate Metabolism of the Prostate Gland and Its Secretion in Dog and Man," and by Dr. William F. Boyer, San Francisco (second prize), for his paper, "Carcinoma of the Prostate: A Cytological Study." The annual Award for Research on the Human Male Reproductive Tract will be presented to Edmond J. Farris, Ph.D., of the Wistar Institute, Philadelphia, who will speak on "Evaluation of Sterility Problems in the Male." The Ramon Guiteras Lecture will be presented Wednesday by Dr. Jean R. Oliver, New York, on "When is the Kidney Not a Kidney?" Motion pictures and scientific and technical exhibits will be shown.

Special Society Elections.—The American Academy of General Practice at its recent meeting in Cincinnati installed Dr. Elmer C. Texter, Detroit, as president, and chose Drs. Stanley R. Truman, Oakland, Calif., as president elect; Ulrich R. Bryner, Salt Lake City, treasurer, and R. B. Robins, Camden, Ark., speaker of the congress of delegates. The Academy has changed its address from 231 W. 47th Street to 406 W. 34th Street, Kansas City 2, Mo.——At the annual meeting of the American College of Allergists in Chicago April 14-17 Dr. Jonathan Forman, Columbus, Ohio, was installed as president and Dr. Charles H. Mitchell, also of Columbus, was made president elect. Dr. Frederick Wittich, Minneapolis, was elected to serve a fifth term as secretary-treasurer.——At the recent meeting of the Tri-State Medical Association of the Carolinas and Virginia, Dr. Russell Buxton of Newport News, Va., became president and Dr. Richard B. Davis, Greensboro, N. C., was made president elect. Dr. James M. Northington of Charlotte was reelected secretary-treasurer.——The National Malaria Society at its annual meeting installed Wendell D. Gingrich, Sc.D., as president and chose Dr. Paul F. Russell, New York, president elect. Martin D. Young, Sc.D., is secretary-treasurer. The American Society of Tropical Medicine chose Dr. Norman H. Topping, Bethesda, Md., as president.

University Programs in Hospital Administration.—The organizational meeting of the Association of University Programs in Hospital Administration was held in New York City December 17-19 with Dr. Arthur C. Bachmeyer, Chicago, as acting chairman. The purpose of the organization is to provide an opportunity for group discussion of common problems, to set standards, to promote development of education in hospital administration leading to a degree and the development of research in hospital administration. Membership in the organization is to be composed of only those courses conducted by universities and leading to a master's or an equivalent degree. To avoid confusion in the placement of students in residencies it was agreed that course directors would not make definite recommendations before February 1 of each year to preceptors on students finishing in May or June. The first notification was to be made between April 1 and April 15 on completed applications and the applicant must apply by May 1, at which time each course would notify other courses of names of students that have been accepted. It was agreed to change the name of administrative intern to administrative resident. The group is to hold another meeting in Chicago this spring.

Traffic Safety Winners.—Massachusetts and Washington, D. C., were named April 13 the grand award winners in the 1948 National Traffic Safety Contest conducted by the National Safety Council. All 48 states and 578 cities participated in the contest, which covered the calendar year of 1948. In addition, 401 municipalities with populations between 5,000 and 10,000 were cited in the Honor Roll section of the contest. The large number of entries reflects increasing concern with the traffic accident problem, the council said. States which won first place in their divisions were: North Carolina, Minnesota, Washington and Massachusetts. Cities which won first place in their population groups were: Washington, D. C., among cities of more than 500,000 population; Syracuse, N. Y., in the 200,000 to 500,000 group; Berkeley, Calif., in the 100,000 to 200,000 group; Jackson, Mich., in the 50,000 to 100,000 group, and Belmont, Mass., in the 25,000 to 50,000 group. Peru, Ind., and Stillwater, Okla., tied in the 10,000 to 25,000 group.

The following special honors were voted: For the outstanding traffic safety performance in the nation, an Award of Merit to Oak Ridge, Tenn.; special award for the achievement of a substantial decrease in traffic accidents during the past three years, Los Angeles; for sustained records of excellence in traffic safety for a period of five or more consecutive years—Clarksdale, Miss., Swampscott, Mass., and Stillwater, Okla. Other special awards included a special honor roll of 92 cities of more than 10,000 population which completed 1948 without a traffic death. The largest of these was Medford, Mass., with a population of 67,477. Massachusetts won the grand award also in 1937. The grand award for Washington was its second. The city first scored in 1946. Contest rules provide that the national grand awards shall go to the state and city which, in the opinion of the judges, came nearest to doing everything practicable for traffic safety.

CORRECTION

Protein Comes Into Its Own.—In the article by this title in The Journal of April 2, page 899, in line 21 in the right hand column, the word "unpolished" should have been "polished."

Marriages

Jerome Radding, Portland, Ore., to Miss Marian Jeanne Cohen, Los Gatos, Calif., in San Francisco, March 6.

Roscoe Searls Mosiman, New Orleans, to Miss Celia Margaretta Biddle of Albany, N. Y., March 12.

Horace Ingraham Crary, Northport, N. Y., to Miss Arline Bennett Gardner of Brooklyn, March 19.

Joseph J. Miller, Reading, Pa., to Miss Eleanor Krogman of Laureldale, in Reinerton, March 12.

Nathan S. Hale, Wilmington, Ohio, to Miss Ruth Margery Brock of Alliance in Columbus, in March.

Thomas Dee Rees, Salt Lake City, to Miss Edith Natalie Bowes in Short Hills, N. J., March 25.

John Eugene Flynn, Philadelphia, to Miss Elizabeth Ann Early of Hudson, N. Y., February 26.

Albert Krehl Smith, Salt Lake City, to Miss Beverly Pearl Dew of Norfolk, Va., March 19.

Robert D. London, Perth Amboy, N. J., to Miss Ellin Naumburg of New York, March 26.

James J. Traitz to Miss Gloria Jeannette Pezzillo, both of Philadelphia, February 26.

William V. Trowbridge, Ada, Ohio, to Miss Lois Kathryn Warnke of East Cleveland, March 5.

Roy Craig Swan Jr., New York, to Miss Marian Evalyn Morse of Philadelphia, March 26.

William Rayner Watson to Miss Katherine Vogel Stern, both of New York, March 5.

Samuel L. Beranbaum to Miss Betty Adelaide Samson, both of New York, March 24.

Abraham Gellar, Brooklyn, to Miss Mildred J. Cable of Chicago, February 6.

Deaths

Edward Loughborough Keyes, New York; born in Elizabeth, N. J., May 15, 1873; College of Physicians and Surgeons, medical department of Columbia College, New York, 1895; emeritus professor of clinical surgery (urology) at Cornell University Medical College, which he joined in 1904 and served continuously with the exception of 1910-1911, when he was professor of urology at the Bellevue Hospital Medical College; adjunct professor of urology at the New York Polyclinic Medical School from 1903 to 1908; member of the American Medical Association and in 1917 member of the House of Delegates; an honorary president and from 1923 to 1935 president of the American Social Hygiene Association, which in 1938 awarded him the first William Freeman Snow Medal for distinguished service in the field of social hygiene; past president of the Clinical Society of Genito-Urinary Surgeons, American Association of Genito-Urinary Surgeons, [illegible] Association, Society of Sanitary and M[illegible] nd the International Urological Association; formerly vice president of the New York Academy of Medicine; fellow of the American College of Surgeons; specialist certified by the American Board of Urology; honorary fellow of the Royal College of Surgeons, London; served overseas and was a consultant in urology for the American Expeditionary Forces during World War I; in 1935 was decorated with the Legion of Honor of France; for many years on the staffs of the New York, Bellevue, Memorial and St. Vincent's hospitals; author of "Diseases of the Genito-Urinary Organs" and "A Sea Change"; co-author of "Urology"; died March 16, aged 75.

Leon Hastings Cornwall ⊕ New York; born in Alexandria Bay, N. Y., in 1887; Syracuse University College of Medicine, 1910; associate professor of clinical neurology at the Columbia University College of Physicians and Surgeons; member of the American Neurological Association, American Association of Neuropathologists, Association for Research in Nervous and Mental Disease and the American Society of Clinical Pathologists; served on the Mexican border, and in France and Germany during World War I; affiliated with the Neurological Institute of New York, Vanderbilt Clinic, Huntington (N. Y.) Hospital and Kings Park (N. Y.) State Hospital; died in the New York Hospital—Westchester Division, in White Plains, N. Y., March 4, aged 61, of arteriosclerosis.

Archibald Duncan McAlpine ⊕ Detroit; born in Glencoe, Ontario, Canada, Jan. 24, 1882; Detroit College of Medicine, 1905; associate professor of clinical surgery at his alma mater, now known as the Wayne University College of Medicine; member of the founders group of the American Board of Surgery; fellow of the American College of Surgeons; physician for the police and fire departments; served during World War I; for many years chief of the surgical department of Harper Hospital; consulting surgeon at the Woman's and Receiving hospitals; died February 27, aged 67, of coronary thrombosis.

Annina Carmela Rondinella ⊕ Wellesley, Mass.; born in Philadelphia in 1874; Woman's Medical College of Pennsylvania, Philadelphia, 1899; member of the New Hampshire Medical Society; consulting ophthalmologist at Wellesley College for many years; affiliated with Simpson Hospital of Wellesley College; at one time on the faculty of her alma mater, Vassar College in Poughkeepsie, N. Y., and the Connecticut College for Women in New London; served on the staff of Morrison Hospital in Whitefield, N. H.; died March 11, aged 74, of arteriosclerosis and hypostatic pneumonia.

Charles Lee Baker ⊕ First Lieutenant, U. S. Army, retired, Columbia, S. C.; University of Virginia Department of Medicine, Charlottesville, 1897; veteran of the Spanish-American War and World War I; entered the medical corps of the U. S. Army on March 15, 1927 and retired on the same date for disability in line of duty, under a special act of Congress; died in the Veterans Administration Hospital March 7, aged 77, of Parkinson's disease and cerebral hemorrhage.

Erwin Carter Brandon, Bedford, Va.; Vanderbilt University School of Medicine, Nashville, 1910; served during World War I; medical examiner for the Norfolk and Western Railway; died March 4, aged 60, of cerebral hemorrhage.

Asa Sheldon Briggs, Providence, R. I.; Harvard Medical School, Boston, 1911; for many years assistant superintendent of Rhode Island Hospital; formerly superintendent of the State Home and School for Dependent and Neglected Children; at one time a member of the state penal and charitable commission; died March 9, aged 63, of cerebral hemorrhage.

James David Buchanan, Marion, Va.; Bellevue Hospital Medical College, New York, 1892; formerly mayor and postmaster; member of the staff of the Southwestern State Hospital; director of the Marion National Bank; on the board of George Ben Johnston Memorial Hospital in Abingdon; died in Lee Memorial Hospital February 27, aged 83.

Rudolph Buhman ⊕ St. Louis; Marion-Sims College of Medicine, St. Louis, 1894; died February 14, aged 76.

Lucius Constant Bulkley, Claremont, Calif.; Columbia University College of Physicians and Surgeons, New York, 1901; for many years a medical missionary in Siam; died January 20, aged 71.

Charles John Carlin, Joliet, Ill.; the Hahnemann Medical College and Hospital, Chicago, 1912; member of the American Medical Association; past president of the Will-Grundy Counties Medical Society; past president of the Will County Tuberculosis Sanatorium; died February 23, aged 60, of coronary occlusion.

Anthony Bernard Danisawich ⊕ South Mountain, Pa.; Jefferson Medical College of Philadelphia, 1922; member of the American College of Chest Physicians; affiliated with the Pennsylvania State Sanatorium number 1; died in St. Mary's Hospital, Rochester, Minn., February 18, aged 51, of complications resulting from chronic pulmonary disease.

Charles Olive Dearmont, White Post, Va.; University College of Medicine, Richmond, 1903; member of the American Medical Association; served as chairman of the county school board; died, February 23, aged 70.

Grover Cleveland DeBolt, Little Rock, Ark.; University of Tennessee College of Medicine, Memphis, Tenn., 1923; member of the American Medical Association; formerly health officer of Rogers; consultant for the Veterans Administration; died February 2, aged 64.

Arthur Murphy Doty, Lexington, Miss.; Memphis (Tenn.) Hospital Medical College, 1899; died in New Orleans February 21, aged 80.

Cyril Dustan, Brooklyn; Long Island College of Medicine, Brooklyn, 1943; certified by the National Board of Medical Examiners; research associate at the School of Public Health of the Faculty of Medicine of Columbia University; died January 21, aged 34.

Lester Lymon Eberhart ⊕ Angola, Ind.; Indiana University School of Medicine, Indianapolis, 1930; died January 18, aged 51, of coronary occlusion.

Jacob A. Edelstein ⊕ Los Angeles; Fordham University School of Medicine, New York, 1918; died recently, aged 59.

Haickel Alexander Elkourie ⊕ Birmingham, Ala.; University of Nashville (Tenn.) Medical Department, 1901; died February 1, aged 68, of coronary thrombosis.

Herbert Calvin Evans, Los Angeles (licensed in California in 1922); died March 21, aged 63, of cerebral hemorrhage.

Christopher Franklin Farmer, Kentwood, La.; Memphis (Tenn.) Hospital Medical College, 1908; died March 2, aged 75.

Edwin Charles Fassett ⊕ Kingston, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1904; specialist certified by the American Board of Otolaryngology; served during World War I; on the staffs of the Kingston, Benedictine and Ulster County Tuberculosis hospitals; died February 25, aged 70, of carcinoma.

James Edward Furr ⊕ Marks, Miss.; Tulane University of Louisiana School of Medicine, New Orleans, 1913; served during World War I; medical superintendent and owner of Marks Hospital; died February 22, aged 57, of coronary occlusion.

Samuel Bernard Goldberg, Medford, Mass.; Middlesex College of Medicine, Waltham, 1928; member of the American Medical Association; died January 5, aged 45.

John Francis Golden, Dormont, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1903; member and for many years president of the school board; served during World War I; on the staff of St. Joseph's Hospital in Pittsburgh; died in the Veterans Administration Hospital, Aspinwall, February 22, aged 69, of heart disease.

Joe Davis Goodwin, Nashville, Tenn.; University of Tennessee Medical Department, Nashville, 1892; died February 2, aged 79, of intestinal hemorrhage and rectal carcinoma.

Henry James Goubeaud Jr. ⊕ Brooklyn; Long Island College Hospital, Brooklyn, 1920; specialist certified by the American Board of Obstetrics and Gynecology; fellow of the American College of Surgeons; served on the faculty of his alma mater; on the staffs of the Kings County and St. Mary's hospitals; formerly on the staff of the Holy Family Hospital; died February 10, aged 54, of heart disease.

Morris Baldwin Green ⊕ Baltimore; University of Maryland School of Medicine, Baltimore, 1909; died February 2, aged 62, of arteriosclerotic heart disease.

George D. J. Griffin ⊕ Chicago; Northwestern University Medical School, Chicago, 1908; clinical professor of surgery at the Loyola University School of Medicine; fellow of the International College of Surgeons and the American College of Surgeons; served in France during World War I; president of the staff of Mercy Hospital, where he died March 27, aged 61, of carcinoma.

Charles H. Hall, Boothsville, W. Va.; Kentucky University Medical Department, Louisville, 1904; member of the American Medical Association; died March 15, aged 73, of injuries received when struck by a transformer when a truck crashed into a telephone pole under which his car was parked.

James Monroe Hancock, Oakland, Calif.; Chicago College of Medicine and Surgery, 1910; veteran of the Spanish-American War; died February 23, aged 71, of arteriosclerotic heart disease.

Frank Madison Harvin, Columbia, S. C.; Medical College of South Carolina, Charleston, 1907; served overseas during World War I; died in the Baptist Hospital February 23, aged 68.

William Vincent Healey ⊕ New York; Cornell University Medical College, New York, 1916; fellow of the American College of Surgeons; served overseas during World War I; formerly on the faculty of the New York Polyclinic Medical School and Hospital; honorary surgeon of the New York Police Department; consulting surgeon at the State Hospital, Kings Park; affiliated with Doctors, Broad Street and Gouverneur hospitals; director of surgery at St. Clare's Hospital, where he died March 9, aged 57.

Floyd Michael Hellwarth, Phoenix, Ariz.; Ohio Medical University, Columbus, 1906; member of the American Medical Association and the Oregon State Medical Society; died February 15, aged 67, of coronary thrombosis.

Leo Charles Henrich, Lincoln, Neb.; Creighton University School of Medicine, Omaha, 1935; served during World War II; member of the staff of Lincoln State Hospital, where he died February 16, aged 39.

Edwin Forrest Hitchcock, New York; Long Island College Hospital, Brooklyn, 1894; died February 28, aged 87.

Edward Michael Iland ⊕ Coraopolis, Pa.; Medical Department of the Western University of Pennsylvania, Pittsburgh, 1896; district medical director for Allegheny County; served during the Spanish-American War, on the Mexican Border and in France during World War I; died in the Sewickley (Pa.) Valley Hospital, January 14, aged 77.

William Sebald Keller, Cincinnati; Miami Medical College, Cincinnati, 1904; member of the American Medical Association; formerly senior surgeon in the U. S. Public Health Service Reserve; for many years president of the Cincinnati Social Hygiene Society and a member of the coordinating committee of the Cincinnati Public Health Federation; served on the staffs of Christ and Children's hospitals; died in Clearwater, Fla., March 9, aged 66, of renal insufficiency and arteriosclerosis.

Raymond Hadley Kenan, North Rose, N. Y.; Syracuse University College of Medicine, 1927; member of the American Medical Association; died in the Edward J. Barber Hospital, Lyons, February 15, aged 47.

Reginald John Konopka, Shamokin, Pa.; Middlesex College of Medicine and Surgery, Cambridge, Mass., 1936; died February 23, aged 40.

Herman Henry Lahke, Cincinnati; Miami Medical College, Cincinnati, 1903; died at St. Francis Hospital February 26, aged 72, of prostatic carcinoma.

Priestley Lipscomb ⊕ Denton, Texas; Louisville (Ky.) Medical College, 1894; past president of the Denton County Medical Society; died February 15, aged 79, of senility.

Anna Jackson Longshore, Waterloo, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1903; died January 23, aged 80.

Harold Hamilton Longwell, Tyrone, Pa.; Baltimore Medical College, 1910; Medico-Chirurgical College of Philadelphia, 1914; died February 14, aged 66, of coronary thrombosis.

Edward Chadwick McClees ⊕ Elm City, N. C.; Medical College of Virginia, Richmond, 1917; died March 4, aged 56, of cerebral hemorrhage.

William Aloysius McCormick, New Bedford, Mass.; Tufts College Medical School, Boston, 1914; member of the American Medical Association; died in Sarasota, Fla., February 21, aged 57, of hypertension and chronic nephritis.

Julius A. McMillan, Nashville, Tenn.; Meharry Medical College, Nashville, 1904; professor emeritus of gynecology at his alma mater; affiliated with Hubbard Hospital, where he died February 22, aged 76, of coronary heart disease.

Archibald Buxton McQueen, St. Petersburg, Fla.; North Carolina Medical College, Davidson, 1902; died February 6, aged 75, of cerebral hemorrhage.

Wallace Lynnville Matlock, Deadwood, S. D.; National University of Arts and Sciences Medical Department, St. Louis, 1918; member of the American Medical Association; died in St. Joseph's Hospital January 24, aged 52, of coronary heart disease.

Adelaide Mills, St. Albans, N. Y.; Eclectic Medical College of the City of New York, 1903; died in the Queens General Hospital, Jamaica, January 21, aged 87.

Charles E. Milson, Catasauqua, Pa.; Hahnemann Medical College of Philadelphia, 1884; died January 1, aged 85, of valvular heart disease.

Charles Edward Murray, Cincinnati; Medical College of Ohio, Cincinnati, 1903; died in the Deaconess Hospital January 1, aged 72.

Adlai Stevenson Oliver Jr., Raleigh, N. C.; Jefferson Medical College of Philadelphia, 1940; member of the American Medical Association; served during World War II; died January 18, aged 32.

Abraham Rothseid ⊕ Newark, N. J.; University and Bellevue Hospital Medical College, New York, 1914; died February 24, aged 62, of coronary occlusion and arteriosclerotic heart disease.

Amos Bowman Schnader ⊕ Terre Hill, Pa.; Jefferson Medical College of Philadelphia, 1903; on the staff of Lancaster (Pa.) General Hospital; died in St. Joseph's Hospital in Lancaster, January 19, aged 73, of heart disease.

Scott Searles, Los Angeles; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1889; died in California Lutheran Hospital February 13, aged 84, of cerebral thrombosis.

Martha Abbie Winegar Simpson, Glendale, Calif.; Northwestern University Woman's Medical School, Chicago, 1894; died in the Loma Linda (Calif.) Sanitarium and Hospital, January 9, aged 84.

Wilson Jackson Smith, Forsyth, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1900; member of the American Medical Association; past president of the Monroe County Medical Society; died January 3, aged 69, of melanoma of the lung.

Charles Stein, Long Beach, Calif.; University of Louisville (Ky.) Medical Department, 1907; member of the American Medical Association; served during the Spanish-American War and World War I; died January 22, aged 72.

Hack Urquhart Stephenson ⊕ Richmond, Va.; Medical College of Virginia, Richmond, 1895; formerly member of the state board of medical examiners; served as surgeon for the Chesapeake and Ohio Railroad; died January 20, aged 76.

Thomas Somerville Stewart ⊕ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1901; member of the American Roentgen Ray Society; curator of the microscopical section of the Academy of Natural Science; died February 19, aged 72.

Matthias Ware ⊕ West Branch, Iowa; State University of Iowa College of Medicine, Iowa City, 1912; served on the staffs of St. Luke's Hospital in Cedar Rapids and Mercy Hospital in Iowa City, where he died February 14, aged 65, of pulmonary embolism.

Clarence H. Waring ⊕ Medical Director, U. S. Public Health Service, retired, Pass Christian, Miss.; Mississippi Medical College, Meridian, 1907; entered the U. S. Public Health Service in August 1914 and retired July 1946; died in Gulfport, February 26, aged 66, of ventricular fibrillation and acute coronary occlusion with infarction.

Olin Heard Weaver ⊕ Macon, Ga.; Atlanta Medical College, 1894; fellow of the American College of Surgeons; member of the House of Delegates of the American Medical Association from 1930 to 1947; on the staffs of the Macon and Middle Georgia hospitals; died March 2, aged 75, of coronary thrombosis.

Foreign Letters

PARIS

(From Our Regular Correspondent)

March 10, 1949.

Survival of the Placenta

Professor J. A. Thomas, director, laboratory for experimental cellular biology, had previously obtained the survival of the fetus of mammals which can be used for the massive cultivation of certain viruses by means of prolonged perfusion. This achievement is due to an apparatus devised by the author and his co-workers. As the application of this process to living human organs appeared indicated, the author selected the placenta, the only organ susceptible of being taken without injury to the subject. The first trial, made with the collaboration of Professor Varangot (Port-Royal Obstetrical Clinic), was performed on a placenta obtained at cesarean section, which has survived fifty-three hours. They have recently realized the survival for three days of a placenta normally expelled in the course of delivery. Immediately after delivery, 100 cc. of physiologic dextrose solution, containing 125 mg. heparin, is injected through the umbilical artery into the placenta; the amnion, main cause of infection, is minutely eliminated. After being put temporarily in a bath it is taken to the laboratory, where the preliminary vascular washing is first effected by putting a cannula in one of the two umbilical arteries, the other one being tied and the vein cut. Finally, the placenta is branched on the artificial circulation of the automatic apparatus; the perfusion then occurs in the physiologic direction through the umbilical artery, the return being made through the open vein; the maximum arterial pressure is 70 mm. of mercury, the minimum 20; there are 76 to 90 pulsations to the minute, and the temperature is 38 C. The perfused liquid is a mixture of human stored blood and of a solution containing 5 Gm. dextrose per liter and 1 Gm. sulfamethazine (N-4,6-dimethyl-2-pyrimidyl sulfanilamide); penicillin and streptomycin are added. Under these conditions neither the perfusion fluid nor the placenta has become infected, even in a case when delivery occurred twenty-four hours after the rupture of the membrane. During the perfusion, which lasted for more than three days and which, according to the authors, could very likely be prolonged, the placenta keeps a normal appearance and consistency.

Organization for Welcoming the World's Medical Corps

This organization, created by the general confederation of the French syndicates of doctors, was inaugurated on February 26, in the course of a reception. Among those present were the representative of the direction of cultural affairs of the Foreign Office, the representative of the Minister for Public Health, cultural attachés to foreign embassies and legations and numerous members of the teaching staff of the faculty and hospitals. Its aim is to put at the disposal of foreign doctors arriving in France an organization capable of rendering them numerous services; i. e., to inform them on scientific and hospital centers as well as on cultural and touristic matters.

The Precursor of the Antibiotic Action of Penicillin

At a recent meeting of the National Academy of Medicine, Justin Godard drew attention to the fact that in 1897 a pupil of the Military Medical School, Ernest Duchesne, presented a thesis entitled "Contribution to the Study of Vital Concurrence in Micro-Organisms; Antagonism Between Molds and Microbes." He is unquestionably the first to have discovered the fact and to have studied its mechanism; from his experiments on guinea pigs he drew possible therapeutic consequences.

ITALY

(From Our Regular Correspondent)

FLORENCE, Feb. 28, 1949.

Congress of Obstetrics and Gynecology

At the Thirty-Ninth Congress of the Italian Association of Obstetricians and Gynecologists in Bologna, Professor Scaglione, University of Palermo, reported on classification and symptomatology of ovarian tumors. He emphasized that because of the high incidence of tumors of the ovaries, the variety of their structure, genesis, clinical course and biologic peculiarities, any actual classification of the tumors based on clinical, biologic or histologic characteristics or based on histogenesis is not exempt from criticism. Miller believes that tumors originating in the membrana granulosa and in the theca are of epithelial nature. Werdt calls attention to the great resemblance which exists between these tumors and the round cell sarcomas of the ovaries, and Rosenstein interprets these neoplasms as mixed tumors, using for them the term sarcocarcinoma of the ovaries. Occasionally the tumor cells may be arranged around the capillaries and may therefore be considered as peritheliomas.

Polymorphism is one of the most important characteristics of numerous tumors causing hormonal hyperfunction of the ovaries, and that is why some authors have stated that one has to deal with mixed tumors, while in reality the different microscopic aspect is the expression of the degree of differentiation and of maturity which had been attained.

From a clinical standpoint forms are observed which may be considered as special types of ovarian carcinoma, while others must be considered as special aspects of ovarian sarcoma; but beside these definitely malignant forms there are benign forms.

Consequently, neither the histologic findings nor the clinical criteria may provide the means for classifying all tumors of the ovary. Not even the biologic concept may serve to solve these problems. If the functional activity is manifested by feminization in certain cases and by masculinization in other cases, associated respectively with an increase in estrus-producing compounds or in androgens, one may not always observe an increase in the androgens in the blood, as occurs in some patients with arrhenoblastoma. And there may be also a regular increase in androgens in the typical forms of hypernephroid tumors, though not in the atypical forms.

There is no consensus on the histogenesis of the "functionalizing" tumors and ovarian tumors in general, and the concepts on which Schiller based his classification were not adhered to by all the authors, many of whom have felt it necessary to employ other criteria of classification.

According to Robert Meyer, ovarian tumors do not originate in the membrana granulosa or in normal elements of the theca, but in undifferentiated elements which survived from the period of embryonal development and which may be observed in the fetal period or at birth. According to Schiller, on the contrary, the tumors of the granulosa would have a mesenchymal origin.

From the clinical point of view, one should ascribe great importance to the functional tumors, studying in detail the clinical picture of the feminizing tumors and of the virilizing tumors but not neglecting the other ovarian tumors for which an early exact diagnosis is imperative because of their high incidence and the grave prognosis which many of them present.

Prof. delle Piane, University of Parma, reported on the second subject, "Biologic Bases and Clinical Criteria of Hemotherapy in the Obstetric and Gynecologic Fields." He demonstrated the peculiar conditions which in practice impose an exact evaluation—in the field of diagnosis and treatment—with regard to the double problem offered by the female as blood donor and recipient in case of blood transfusions. This evaluation requires specific competence, a technical and organizational orientation which do not exist in Italy, and it is highly desirable that this congress should give a decisive impulse to its realization.

Some reactions observed in the course of hemotherapy may be explained by the difference of sex between the donor and recipient, depending on the menstrual and reproduction cycle of the woman. In the various phases of the menstrual cycle the blood presents biologic characteristics which justify specific utilization in function of the hormone contents of the blood. Women possess a greater capacity than men of replacing blood, probably because they are normally faced with the task of providing for periodic blood losses. Only during menstruation and when this is imminent, the withdrawal of blood is contraindicated because of the possible repercussions on menstruation itself. During the menstrual phases and during the climacteric period the female appears to be less fit to be a donor than during the menopause, during which the peculiar endocrine characteristics of the blood warrant some specific utilizations.

When one considers the female as recipient of hemotherapy, in relationship to the various phases of her sex life, the greatest advantages may be obtained with a hemotherapeutic treatment using the blood of a person with different or strictly antagonistic endocrine orientation. For such motives the utilization of male blood or of placental blood may be indicated. In some syndromes of dysendocrisiasis, the blood of pregnant women seems to be more indicated for hemotherapy. On the other hand, women may not be considered as good blood donors at any time during the puerperal state. Labor and the period immediately after delivery present the phases in which, because of the greater possibility of neuroendocrine, hemodynamic and colloidosmotic imbalance, it may be difficult to institute effective transfusion therapy; consequently prophylactic hemotherapy by transfusions is of great value intrapartum, or better during the phase which immediately precedes birth. The puerperium constitutes a wide field for application of hemotherapy with regard to prophylaxis and treatment of puerperal infection.

DENMARK

(From Our Regular Correspondent)

COPENHAGEN, April 6, 1949.

Bad Medical Advice by Wireless

On the whole, the issue of medical news by the Danish state-controlled wireless is satisfactory. A committee representing the Danish Medical Association acts in an advisory capacity, undertaking to scrutinize and, if necessary, put a blue pencil through articles on medical subjects submitted to it by the wireless service. This scrutiny helps to suppress definitely misleading statements, but passage of it does not necessarily mean that the censors have whole-heartedly endorsed the text they have passed. So far so good, at any rate with regard to important papers put on the program several days in advance. But short items of news, whose value is fleeting, are apt to be dealt with so cursorily that there is little time for submission to a board of censors. In such cases the wireless service itself takes responsibility, and its judgment is nearly always sound. But even Homer has been caught nodding, and recently a short announcement on the air led to sharp protests.

The offender on this occasion was a doctor who had become so impressed by the efficacy of methadone in the treatment of morphomania that he wished the whole world to know what a wonderful discovery it represented. He voiced his enthusiasm also in the press, both medical and lay. Whereupon Professor K. O. Møller issued an emphatic protest from the University Pharmacological Institute. He pointed out that though the drug may have certain beneficial properties in weaning morphomaniacs of their habit, these qualities do not necessarily imply that its chronic misuse is less dangerous than that of morphine. In defense of his action the offender has sought shelter behind the claims made on behalf of the drug by its manufacturers. The obvious retort to this defense is that one is expected to take the claims of manufacturing chemists with a large grain of salt. In Denmark, at any rate, the brochures extolling the merits of certain drugs have not to be submitted by their manufacturers to any medical board of censors.

The Frequency of Cancer of the Lungs

Nearly the whole of the issue of the *Ugeskrift for Laeger* for March 17 is devoted to a series of articles on cancer of the lungs, which, according to a leader in the same number of this journal, is "approximately as common as cancer of the stomach." It is added that the diagnosis of cancer of the lungs and treatment of it as such are much rarer events. In the same leader the statement appears that in men over 35 to 40 years cancer of the lungs is far more common than tuberculosis. In a study of 211 cases of bronchogenic carcinoma observed in hospital in the period 1940 to 1948, Dr. A. V. Möller and Dr. Flemming Raaschou point out that this condition is ten times as common in men as in women, and that it is equally frequent on the two sides of the chest.

Dr. Jens L. Hansen is a keen advocate of bronchoscopy as an aid to early diagnosis. He considers this measure just as safe and just as important as cystoscopy or proctoscopy in their respective fields. When the disease is situated in the larger bronchi ,and it is supposed to be so by Björk in 65 per cent of all cases of bronchial carcinoma, the bronchoscope may clinch the diagnosis at a stage when the roentgenologic findings are negative. But this does not mean that Dr. Hansen is depreciative of roentgen rays in this field, and his three main aids to early diagnosis are the roentgen rays, the bronchoscope and the examination of bronchial discharge for cancer cells. As revealed by this symposium, there seems to be plenty of room for improvement with regard both to early diagnosis and early treatment by operation.

Deaths from Drugs

Recently published statistics have thrown an unflattering light on deaths due to drugs in Denmark. It may be idle to speculate on the benefits derived from the 15,000,000 kroner spent in 1947 on drugs by the sickness insurance societies, but we have the disquieting fact that in 1945 there were as many as 420 deaths from drugs. Dr. Palle Wiingaard has calculated that in this year there were about ten times as many deaths from drugs as from infantile paralysis, and 1 drug death for every 2 deaths from pulmonary tuberculosis. A comparison with other countries is also disquieting. In Denmark in 1944, the drug death rate was 0.19 per thousand, whereas in Norway it was only 0.02 and in England only 0.05 per thousand. During the past twenty-five years the death rate due to drugs has been quintupled, and it has been doubled between 1940 and 1946. The soporific drugs, the barbiturates in particular, are largely responsible for this state of affairs, and in 1945 and 1946 more than 90 per cent of the deaths from poisoning were due to carbon monoxide and soporifics. The fact that the drug death rate is about three times as high in the towns as in the country suggests that the rhythm with which we live our lives often determines the way in which we end them.

The Late Professor Ernst Schmiegelow

Reference was made last November 6 in these columns to the autobiography published by the nonagenarian, Professor Schmiegelow. His death on February 28 of this year ends a most distinguished career. The fates conspired to make Professor Schmiegelow's life singularly sunny. Born on Oct. 13, 1856, he spent his early professional life abroad, largely in Germany, acquiring that cosmopolitan outlook which made him such a welcome guest at international medical meetings. His standing as an otolaryngologist led to his election in 1929 as the president of the first international Otolaryngologic Congress in Copenhagen. Turned 90, he reluctantly abandoned skiing in Norway for the more sedate toboggan, but he was physically and mentally active up to the moment of his death.

Correspondence

ADRENAL CORTICAL HORMONE FOR ARTHRITIS

To the Editor.—Drs. P. S. Hench, E. C. Kendall, C. H. Slocumb and H. F. Polley of the Mayo clinic and Mayo Foundation have studied the effects of an adrenal cortical hormone (compound E), which appears to give some promise of relief in certain forms of arthritis. *(Proc. Staff. Meet., Mayo Clin.* **24:** 181 [April 13] 1949). For the past several years Merck & Co., Inc., has been privileged to participate in this project by collaboration with Dr. E. C. Kendall and under an agreement with the Research Corporation. Compound E was first synthesized in the Merck Research Laboratories, and the details of this synthesis were published in the March 1946 issue of the *Journal of Biological Chemistry*. We have supplied from the limited amounts available the greater part of Compound E for Dr. Hench's clinical work during the past eight months.

It is expected that the publication of Dr. Hench and his associates will lead to widespread interest and demand for Compound E. We regret that we must at this time emphasize that there will be no Compound E available from us except for very limited and essential research.

We are making strenuous efforts to expedite production, but many months will be required to obtain finished material. A highly complicated synthesis is involved. In addition, there is an inadequate supply of raw material to meet anticipated demands. It is believed that a new synthesis must be developed before sufficient Compound E can be made generally available.

The foregoing points are brought to your attention as a matter of information to all concerned and in an effort to avoid, so far as possible, disappointment because of shortage of supplies.

MERCK & CO., INC., Rahway, N. J.

USE OF MIXTURES OF SULFONAMIDE DRUGS

To the Editor:—In their letter to the Editor of Dec. 4, 1948, Drs. Reinhold and Flippin commented that the figure of 6 Gm. excretion of acetylated sulfonamide compound which we assumed for purposes of calculation in our letter of Oct. 2, 1948, was exceedingly high. In our original communication we stated that this figure was used for the sake of simplicity. We concede that it is too high. Nevertheless, it can be shown that the reduction in crystalluria to be expected from the use of sulfonamide mixtures is small, using the figures given by Drs. Reinhold and Flippin for absorption and acetylation.

They state that 4 Gm. of sulfonamide compound would be absorbed and 10 to 50 per cent acetylated. Let us first calculate the amount of sulfonamide compound to be excreted as crystals when 10 per cent is acetylated, assuming a urinary p_H of 5.5 and a urinary output of 1,500 cc. per day. If 10 per cent is acetylated, 90 per cent, or 3,600 mg., is excreted as free sulfonamide compound. The acetylated form does not enter into the calculation here because the small amount is all dissolved. If the 4 Gm. absorbed consisted of equal parts of sulfadiazine and sulfamerazine, then 1,800 mg. of each would be excreted as the free compound. Since the solubilities of sulfadiazine and sulfamerazine are 13 and 35 mg. per hundred cubic centimeters respectively at p_H 5.5 (Gilligan, D. R., and Plummer, N.: *Proc. Soc. Exper. Biol. & Med.* **53:** 142, 1943), 195 mg. of free sulfadiazine and 525 mg. of free sulfamerazine would be dissolved in the 1,500 cc. of urine, leaving 1,605 mg. of free sulfadiazine and 1,275 mg. of free sulfamerazine in crystal form, or a total of 2,880 mg. to be excreted as crystals. On the other hand, if sulfadiazine alone were given, the 3,600 mg. of free compound requiring excretion would give up 195 mg. in solution, leaving 3,405 mg. as crystals. The 400 mg. of acetylsulfadiazine excreted would give up 300 mg. in solution, leaving 100 mg. as crystals. Therefore, a total of 3,505 mg. of crystals would be excreted if sulfadiazine alone were given. The foregoing calculation shows that 625 mg. less of the drug would be excreted as crystals if the mixture were used than if sulfadiazine alone were used.

Similarly, if one calculates the amount of drug to be excreted as crystals when 50 per cent of the sulfonamide compound is acetylated, one finds that 1,590 mg. would be dissolved and 2,410 mg. of both free and acetylated sulfonamide compound would be excreted as crystals when the mixture is given, while 495 mg. would be dissolved and 3,505 mg. of free and acetylated sulfonamide compound excreted as crystals when sulfadiazine alone is administered, a difference of 1,095 mg. (The solubilities of sulfadiazine, sulfamerazine, acetylsulfadiazine and acetylsulfamerazine are 13, 35, 20 and 38 mg. per hundred cubic centimeters, respectively, at p_H 5.5.) Thus, the use of the mixture might be expected to reduce the amount of crystals by 625 to 1,095 mg., while still leaving from 2,410 to 2,880 mg. of crystals in the urine.

Drs. Reinhold and Flippin state that a portion of the excreted sulfonamide compound is maintained in supersaturated solution. It would seem safer to choose a regimen of therapy which does not depend on supersaturation to reduce crystalluria.

In a letter to the Editor on February 1, Dr. David Lehr took exception to the value which we used for the solubility of acetylsulfamerazine at p_H 5.5. He stated that 38 mg. per hundred cubic centimeters is "only half the actual value." There is no agreement on the value of solubility in relation to this compound and because of our familiarity with the careful work of Gilligan and Plummer (*Proc. Soc. Exper. Biol. & Med.* **53:** 142, 1943) we adopted their value of 38 mg. per hundred cubic centimeters. Dr. Lehr selected the higher value stated in the *Acta Chemica Scandinavica.* In support of this value he cited an additional reference, but this paper (Welch, A. D.; Mattis, P. A.; Latven, A. R.; Benson, W. M., and Shields, E. H.: *J. Pharmacol. & Exper. Therap.* **77:** 357, 1943) fails to disclose any experiments on solubility performed at a p_H below 6.

Dr. Lehr questioned the validity of our view that the use of a mixture of sulfonamide compounds gives a false sense of security in the matter of preventing crystalluria, and he tried to support his position by the contention that our calculations were made on the basis of extreme conditions—namely, 1,500 cc. of urine daily, which he regarded as unreasonably low—and on our use of a urinary p_H of 5.5, which he regarded as "the highest possible acidity." It is well known that a urinary output of no more than 1,500 cc. a day is common, especially in febrile patients who lose a large proportion of their water in other ways, and also that a urinary p_H of 5.5 is far from "the highest possible acidity." Such a p_H is commonly found in the urine of patients with infection and fever. Best and Taylor stated the lowest p_H in health to be 4.7. While it is true that the protection against crystalluria afforded by mixing the sulfonamide compounds would be enhanced at higher p_H values, we based our calculations on a more acid urine for the very reason that such urine is more apt to be encountered in patients with infection and fever, and it is in those very cases that the alleged value of mixing sulfonamide compounds to avoid crystalluria is apt to be most misleading.

Confusion would be avoided if it were borne in mind that doubling the solubility of sulfonamide compounds by the use of a dose composed of equal parts of two drugs instead of a similar total dose as one drug does not necessarily reduce crystal formation to one half. By way of illustration, if 20 per cent of the drug excreted is soluble in the urine, doubling the solubility of the drug (by a mixture) to 40 per cent will only reduce the amount of drug not in solution from 80 per cent to 60 per cent of the total quantity.

In short, it is our position that in the average conditions under which the sulfonamide compounds are employed, the alleged benefits from the use of a combination of sulfonamide compounds with respect to the control of crystalluria are small and frequently negligible. Unless there are some contraindications, we would urge dependence on sufficient sodium bicarbonate together with sulfadiazine as a means of preventing crystalluria, rather than on the use of mixtures of the sulfonamide compounds with the attendant increased risk of drug sensitivity reactions.

Solomon Garb, M.D.
Lawrence A. Janoff, M.D.
New York.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* Various Centers. June 20-22, Sept. 12-14. *Part III.* June, various centers. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology, Inc. *Written.* Various Centers. July 15. *Oral.* Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

American Board of Internal Medicine: *Oral.* Philadelphia, June 1-3. *Written.* Oct. 17. Final date for filing application is May 1. Asst. Sec.-Treas. Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

American Board of Neurological Surgery: *Oral.* Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

American Board of Obstetrics and Gynecology, Inc.: *Oral.* Chicago, May 8-14. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

American Board of Ophthalmology: *Oral.* New York, June 11-15; St. Louis, Oct. 15-19; Boston, December. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

American Board of Orthopaedic Surgery. *Part. I.* Indianapolis, May 6-7 and Denver, May 13-14. *Part II.* New York City, Jan. 1950. Final date for filing application for Part II is Aug. 15. Address: Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14, Calif.

American Board of Otolaryngology: New York, May 11-14; Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City

American Board of Pediatrics: *Written.* Under local monitors, June 24. *Oral.* Baltimore, May 7-9; Cleveland, Sept. 16-18; New York City, Oct. 21-23; Chicago, Dec. 9-11. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Physical Medicine. Philadelphia, June 4-5. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

American Board of Plastic Surgery: Examinations are given in June and November of each year in the home town of applicants. Sec.-Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

American Board of Preventive Medicine and Public Health: Washington, D. C., May 14-16. Sec.-Treas., Dr. Ernest L. Stebbins, 615 North Wolfe St., Baltimore.

American Board of Psychiatry and Neurology, Inc. *Special Examination*, October. Place to be announced. Final date for filing application is July 15. December, New York City. Sec. Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Radiology. Atlantic City, June 2-4. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery: *Written.* Various Centers, October 26. Final date for filing application is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

American Board of Urology: *Written*, December. *Oral and Clinical.* Chicago, Feb. 11-15. Final date for receipt of case histories is Sept. 1, 1949. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

Arkansas:* Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 9-10. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

California: *Examination.* San Francisco, June 21-23. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

Colorado:* *Examination.* Denver, June 20-22. Sec., Dr. W. W. King, 831 Republic Bldg., Denver.

Delaware: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

District of Columbia:* *Written*, Washington, May 9-10. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., Washington.

Florida:* *Examination*, Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

Georgia: *Examination.* June 8-9, Atlanta and Augusta. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Guam: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam. % F.P.O., San Francisco, Calif.

Hawaii:* *Examination.* Honolulu, July 11-14. Sec., Dr. S. E Doolittle, 881 S. Hotel St., Honolulu.

Idaho: Boise, July 11-13. Sec., Miss Estella S. Mulliner, Bureau of Occupational Licenses, 355 State House, Boise.

Indiana: *Examination.* Indianapolis, June 21-23. Sec. Board of Medical Registration and Examination. Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

Iowa:* *Examination.* Iowa City, June 13-15. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

Kansas: Kansas City, June 1-2. Sec., J. F. Hassig, 905 North 7th St., Kansas City, Kans.

Kentucky: *Examination.* Louisville, June 15-17 Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville 2.

Maine: Augusta, July 5-6. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

Maryland: *Examination.* Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 14-15 Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

Massachusetts: *Written.* Boston, July 12-15. Sec., Dr. George L. Schadt, 413 E. State House, Boston.

Mississippi: Jackson, June 21-22. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

Missouri: *Examination.* St. Louis, May 30-31 and June 8-10. Exec. Sec., Mr. John A. Hailey, Box 4, Jefferson City.

Nebraska:* *Examination.* Omaha, June 6-8. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9

Nevada: Carson City, May 2. Sec., Dr. G. H. Ross, 112 N. Curry Street, Carson City.

New Jersey: *Examination.* Trenton, June 21-24 Sec., Dr E. H Hallinger, 28 West State Street, Trenton 8.

New York: Albany, Buffalo, New York and Syracue, June 28-July 1, Sec., Dr. Jacob L. Lochner, 23 South Pearl St., Albany.

North Carolina: *Endorsement.* Pinehurst, May 9. *Examination* Raleigh, June 23-25. Sec., Dr. Ivan Procter, 226 Hillsboro St., Raleigh.

North Dakota:* *Written*, Grand Forks, July 5-7. *Reciprocity*, Grand Forks, July 8. Sec., Dr. C. J. Glaspel, Grafton.

Ohio: *Examination.* Columbus, June 15-18. *Endorsement*, Columbus, July 5. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Oklahoma:* Oklahoma City, June 8-9. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Pennsylvania: *Examination.* Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.

Puerto Rico: San Juan, Sept. 6-10. Sec., Dr. Luis Cueto Coll, Box 3717, Santurce.

Rhode Island:* *Examination.* Providence, July 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Carolina: *Examination.* Columbia, June 27-29. *Endorsement.* Columbia, May 2, June 27-28, Aug. 1, Sept. 5 and Oct. 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

South Dakota:* *Examination.* Pierre, July 19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

Texas: *Examination.* Austin, June 16-18 Sec., Dr. M. H Crabb, 209 Medical Arts Bldg., Fort Worth 2

Utah: *Endorsement.* Salt Lake City, May 25. *Examination*, Salt Lake City, July 13-15. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

Virginia: *Examination.* Richmond, June 17-18. *Reciprocity.* Richmond, June 16. Dr. K. D. Graves, 631 First St., S.W., Roanoke.

Washington:* Seattle, July. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

Wisconsin:* *Examination.* Milwaukee, June 28-30. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

Wyoming: Cheyenne, June 20. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

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* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska: Feb. 1950. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

Arizona: Tucson, June 21. Sec., Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

Arkansas: *Examination.* Little Rock, May 3. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.

Colorado: *Examination.* Denver, June 1-2. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

Connecticut: New Haven, June 11. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., New Haven 10.

Florida: *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

Michigan: *Examination.* Detroit and Ann Arbor, May 13-14. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

Minnesota: *Examination.* June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

Oregon: Portland, June 18, Sept. 3 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

South Dakota: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St., Yankton.

Tennessee: Memphis, July 8-9. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

Wisconsin: Milwaukee, June 4. Sec., Prof. W. H. Barber, Ripon College, Ripon.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Chiropractic: Chiropractic Treatment as Part of "Medical Care."—This was a suit for a declaratory judgment to construe a 1945 law providing for the establishment of a Bureau of Medical Services as permitting the rendering of professional services by chiropractors to persons receiving benefits under the act. The plaintiffs are the State Association of Chiropractic Physicians and six members of the Association's Legislative Committee. The defendants are the State Board of Health and the Council on Medical Care. From a judgment dismissing the case, the plaintiff appealed to the Court of Appeals of Maryland.

A 1945 enactment of the Maryland legislature authorized the State Board of Health to establish a Bureau of Medical Services to "administer a program of medical care in the State of Maryland for indigent and medically indigent persons, or either of such classes; for this purpose the Bureau of Medical Services is hereby authorized to contract with physicians, dentists and hospitals for the medical, dental, surgical and hospital treatment of eligible persons, . . . The State Board of Health may make, ordain, alter, amend or abolish rules and regulations for the administration and government of said Bureau . . . and for the medical care of indigent and medically indigent persons, or either of such classes, which rules and regulations in so far as they are within the power of said Board and are consistent with law, shall be binding on all persons whomsoever. . . ." The State Board of Health made the following rule: "Payment to nonmedical practitioners—For the present the program is paying only for the services of physicians, dentists and registered nurses. No payments are being made for services rendered by chiropractors, osteopaths, naturopaths, chiropodists, optometrists or physical therapists."

One of the individual plaintiffs rendered chiropractic service to recipients of aid from the medical care program, but payment therefor was rejected pursuant to the aforementioned rule. The plaintiffs contended that a true construction of the 1945 act was that thereby there was established, for the persons eligible thereto, a program of medical care, which, in a proper case, included chiropractic treatments and the services of a doctor of chiropractic the same as other medical services and aid; that chiropractic science is a system of healing which does not use drugs or surgical treatment to cure diseases but one the value of which is universally recognized in the treatment of a number of ailments of the human body, and that to deny persons receiving benefits under the medical care program chiropractic aid and treatments when needed deprived them of the very thing the medical care program was established to furnish, to wit, proper medical care. The trial court held that under the act the "program of medical care" does not include chiropractic treatments and the defendants, of course, maintained that this construction of the act is correct.

The chiropractic act provides, among other things: ". . . (*c*) Chiropractic is hereby defined to be a drugless health system, the basic principle of which teaches that disease is caused by interference with the transmission of nerve impulses. The practice of Chiropractic is defined as diagnosis, the location of disaligned or displaced vertebrae of the human spinal column, the procedure preparatory to and the adjustment by hand of such misaligned or displaced vertebrae of the spinal column and its articulations, by any method not including the use of drugs, surgery or obstetrics, nor any branch of medicine, nor osteopathy, for the purpose of relieving such interference." Thus, said the court, the practice of chiropractic is defined by statute as expressly excluding the use of "drugs" or "any branch of medicine" and as based on a healing system and cult which, in its theory of one cause of disease and a panacea or near-panacea in one treatment, is wholly at variance with the science and art of medicine as taught and practiced by physicians. Under the medical practice act, a person is regarded as practicing medicine who shall operate on or prescribe for any ailment of another, but this provision is not applicable "to masseurs, or other manual manipulators who use no other means." These exceptions, among others, have been in the statute since it was first enacted in 1902. Thus, said the court, long before practice of osteopathy or chiropractic was licensed, practice of those callings was excluded from unlawful practice of medicine, not by declaring it to be a lawful practice of medicine without a license, but by declaring it not to be regarded as practice of medicine at all. This still is, and was when the act of 1945 was passed, the statutory distinction between practice of medicine and practice of chiropractic in Maryland. Therefore, a "program of medical care" does not include chiropractic treatment, said the Court of Appeals, and we hold that by a true construction of the statute itself the Board has no power to pay for chiropractic treatment. Accordingly the judgment of the trial court dismissing the plaintiff's complaint was affirmed. *Crider et al v. Cullen et al, 63 A.* (2d) 618 (Md., 1949).

Workmen's Compensation Acts: Malpractice Action by Employee.—This was an action to recover damages for the alleged malpractice of the defendant physician. From an adverse report in the superior court the plaintiff appealed to the Supreme Judicial Court of Maine.

As the result of an accident while employed by a local lumber concern, the plaintiff broke the radius of his left arm at the wrist and the defendant was called in as the attending physician. Through the defendant's alleged negligence in applying only splints and no cast the broken bone did not knit properly, the displacement was not corrected when the splints were removed and permanent partial loss of use of the arm resulted. Following the treatment by the defendant physician, the plaintiff filed a claim for compensation under the workmen's compensation act and obtained an award of specific compensation and a lump sum settlement, both of which were paid. The defendant contended that the present action was barred by the plaintiff's acceptance of the compensation award.

It is well settled at common law, said the court, that in an action for negligence causing bodily injury the negligence or lack of skill of a physician or surgeon, selected with reasonable care, which aggravates or increases the injury, is regarded as a consequence reasonably to be anticipated and a part of the injury for which the original wrongdoer is liable. This principle is applied in workmen's compensation cases when an injury to an employee is aggravated by the negligence of a properly chosen physician or surgeon. If the chain of causation remains unbroken, the resulting disability or death is compensable and an award of compensation includes the original injury and its ultimate results through malpractice. Payment of the lump sum is in full settlement of all compensation to which the employee is or may be entitled.

Under the provisions of the workmen's compensation act of Maine, however, an employee injured in circumstances creating a legal liability in some person other than his employer does not, by claiming and accepting compensation from his employer, lose his right to bring a common law action against such other person. His right to enforce liability in his own name, however, is suspended until the employer, vested by subrogation with the injured beneficiary's right of action, fails to pursue its remedy for thirty days after written demand or waives that right. Failure of the employer to bring suit within the thirty-day period after demand, or waiver of its right of action, reinvests the employee with his original right of common law action, and thereafter he alone can pursue it. If he then sues, the statute enables the injured employee not only to receive the compensation allowed by law from his employer but also to obtain from the tortfeasor such additional damages as he would be entitled to had he elected first to bring suit at common law. It is stipulated, the court said, that the plaintiff made no written demand on his employer or the compensation insurer to bring suit against the physician to recover damages for his alleged malpractice. Therefore, the right to recover against the defendant is now vested in, and can only be enforced by, the employer or the insurer.

Accordingly the case was remanded to the trial court for the entry of a nonsuit against the plaintiff. *Mitchell v. Peaslee, 63 A. (2d) 302 (Maine, 1948).*

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

75:637-786 (May) 1948

Mechanism of Production of Acidosis in Premature Infants by Protein Milk. W. S. Hoffman, A. H. Parmelee and A. Grossman.—p. 637.
**Myocarditis and Pericarditis in* Meningococcic Infections. C. U. Lowe and L. K. Diamond.—p. 660.
Value of Routine Roentgenograms of Wrist in Pediatric Service. M. G. Peterman, W. B. Frey and J. D. Kaster.—p. 671.
Dysostosis of Skull, Face and Extremities (Acrocephalosyndactyly). R. W. Buckley and P. I. Yakovlev.—p. 688.

SYMPOSIUM ON ENCEPHALOPATHIES

*What Types of Epileptiform-Like Seizures are Amenable to Surgical Treatment? Surgical Treatment of Epilepsy Due to Atrophic Cerebral Lesions. T. C. Erickson.—p. 712.
Diagnosis of Brain Tumor in Children. T. J. Putnam.—p. 721.
Electroencephalogram in Epilepsy. M. A. Perlstein.—p. 726.
*Treatment of Idiopathic Epilepsy: Introduction of New Drug "Thyphentoin." M. G. Peterman.—p. 734.
Complications of Acute Pyogenic Meningitides. A. L. Hoyne.—p. 741.
Allergic Manifestations in Central Nervous System. B. Ratner.—p. 747.
Convulsions and Acute Infections. J. A. Toomey.—p. 752.

Myocarditis and Pericarditis in Meningococcic Infections.—Lowe and Diamond point out that chemotherapy by reducing the early mortality in meningococcic disease allows the appearance of late complications. The authors report the case of a girl, aged 13, who survived the early days of her disease with the aid of chemotherapy, but experienced severe cardiac complications. She presented evidence of pericarditis, cardiac dilatation, heart failure, peripheral edema, electrocardiographic changes and severe necrotic cutaneous lesions. The acute cardiac dilatation was felt to be due to myocarditis and pericarditis. A pericardotomy was performed. Adhesions and fibrin were encountered under an edematous parietal pericardium, but free fluid was not noted. The epicardium had several irregular, necrotic lesions on its surface, and these presumably involved the myocardium also. Because of the precarious state of the patient lysis of the adhesions and further exploration were not attempted. Oxygen given postoperatively reduced tachypnea, but only morphine relieved the boring pain. There was evidence of cardiac failure. On the morning following operation, pitting edema was present over the tibias, and the liver had enlarged. The pulsus paradoxus was still present. The intake of fluid and salt was restricted. Three days after operation the child's chest was clearer, and the edema had disappeared. Five days postoperatively the temperature fell to normal. The cutaneous lesions, which had been necrotic two weeks before, were now healing. Electrocardiograms were obtained two, four and six months after the onset of illness, and showed a slow return to a configuration that would be considered normal for the patient's age. Roentgenograms of the chest showed a gradual return of the heart to normal size.

Surgical Treatment of Epilepsy.—Erickson says that although more than sixty "causes" of epilepsy have been described, it is often impossible to determine the actual cause, and one is then forced to speak of idiopathic or cryptogenic epilepsy. For the purpose of the present discussion, patients with epilepsy may be placed in two general groups: those with and those without demonstrable cerebral lesions. The decision whether operation should be undertaken depends on the presence of positive evidence of a focal cerebral lesion, as judged by the clinical evidence and as confirmed by the results of pneumoencephalographic and electroencephalographic studies. Surgical *treatment should not be undertaken for an atrophic lesion* unless the evidence from at least two, and preferably three, sources agrees closely. A period of trial with medical therapy is almost always advisable, if the presence of an expanding lesion has been ruled out. The contraindications to operation are, first, the absence of objective evidence of a focal lesion and, second, the presence of diffuse or multiple lesions. The presence of multiple lesions is not an absolute contraindication; for in a few instances multiple, but discrete, cerebral cicatrices have been removed with a subsequent cure of the epilepsy. In most cases multiple cicatrices cannot be removed. For cryptogenic epilepsy, a variety of surgical procedures, such as radical colectomy, oophorectomy and adrenalectomy, have been widely practiced in the past and have been found worthless. Sympathectomy likewise has proved a failure in cryptogenic epilepsy, as has also carotid sinuneurectomy. Encephalography with oxygen or air results in the cessation of seizures in a small percentage of patients, chiefly in children under the age of 16 years. Subtemporal decompression has been tried; but there is no benefit to be derived from the procedure unless the seizures are secondary to a subdural effusion or are associated with a craniostenosis.

Treatment of Idiopathic Epilepsy.—Peterman says that the impending or active convulsion is best treated with sodium phenobarbital given subcutaneously in a dose of 0.016 Gm. to 0.130 Gm. every four hours until the patient has been free of convulsion for twenty-four hours. If the convulsion persists, chloroform or vinyl ether U. S. P. (vinethene®) should be given by inhalation, or tribromoethanol (avertin®) may be given in a dose of 75 mg. per kilogram by rectum. As soon as the convulsion is under control and the patient has regained consciousness, an anticonvulsant preparation should be given by mouth every six hours. Uncomplicated grand mal epilepsy is best treated with phenobarbital. Once the seizures are under control, the drug must be continued in the effective dose for at least one year, or until a normal electroencephalogram is obtained. The drug must never be discontinued abruptly, but should be tapered off gradually for a period of two years. Thyphentoin® (sodium 5,5-phenylthienylhydantoin), a new drug, was tried in over 60 children. It was given in a dose of 0.13 Gm. two or three times a day. This dose was increased when necessary to 0.39 Gm. three or four times a day. When the latter dose did not control seizures, the drug was supplemented in petit mal with tremethadione or in grand mal or combined epilepsy with phenobarbital. The author is of the opinion that uncomplicated petit mal epilepsy may be treated with thyphentoin,® but the patient should be kept under observation for toxic reactions and the blood count checked every two weeks for evidence of depression of the bone marrow. Children with combined grand and petit mal and/or psychomotor epilepsy may be given a trial treatment with thyphentoin.® Failure of response to this drug, and particularly the recurrence of grand mal seizures, requires the addition of phenobarbital.

American Journal of Psychiatry, New York

105:401-480 (Dec.) 1948. Partial Index

Scrutiny, Social Anxiety, and Inner Turmoil in Relationship to Schizophrenia. A. Myerson.—p. 401.
Practical Aspects of Mesantoin Therapy in Epilepsy. J. L. Fetterman and V. M. Victoroff.—p. 410.
Vocational Rehabilitation of Epileptics in Texas. J. L. Otto.—p. 417.
Commitments Under Criminal Sexual Psychopath Law in Criminal Court of Cook County, Illinois. W. H. Haines, H. R. Hoffman and R. A. Esser.—p. 420.
Psychologic and Physiologic Effects of Intravenous Pervitin. J. Levine, M. Rinkel and M. Greenblatt.—p. 429.
*Combined Coramine-Electroshock Therapy in Treatment of Psychotic Excitement. H. D. Fabing.—p. 435.
Electroencephalogram in Postencephalitic Behavior Disorder and Postencephalitic Parkinsonism. S. Levin.—p. 439.
*Summary of 36 Cases of Lobotomy. J. B. Tompkins.—p. 443.
State Mental Hospital as Specialized Community Experience. J. F. Bateman and H. W. Dunham.—p. 445.
Group Psychotherapy with Neurotics. Florence Powdermaker and J. D. Frank.—p. 449.
Problems in Attitude Therapy in Mental Hospital. E. C. Adams.—p. 456.
Plan for Screening, Induction, and Utilization of Man Power. W. Bloomberg.—p. 462.

Combined Nikethamide-Electroshock Therapy in Psychotic Excitement.—This report by Fabing deals with 100 consecutive patients who have been treated by a new method of shock therapy on the neuropsychiatric service at the Christ Hospital, Cincinnati. In this technic the application of electroshock is preceded by the intravenous administration of 5 cc. coramine,® known also as nikethamide. The method has proved of value in reducing manic excitement quickly and dramatically with as few as one or two treatments. It has also proved of value in acute confusional excitement, excitement with severe agitated melancholia, paranoid excitement, excitement with schizo-affective states and in selected cases of intractable severe anxiety. It is assumed that nikethamide, an analeptic drug, excites the higher levels of the nervous system chemically; the electroshock stimulus excites these structures electrically. The simultaneous application of both these stimuli produces an excessive, or ultramaximal, stimulus as defined by Pavlov, and the result is the ultraparadoxic state of cortical inhibition, with consequent abolition of the clinical symptom of excitement.

Lobotomy.—Tompkins reviews observations on 36 patients who received individualized postoperative hospital care and psychiatric direction. This care they feel to be of utmost importance and a skill not easily described or taught, but gained by daily observation of the individual patient's reactions to situations and by so manipulating his environment and activities that good habits are encouraged and poor ones eliminated. The author feels that the operation has been of benefit to all but 2 of the 36 patients and has permitted a half to live fairly normal lives at home. None can be said to have no trace of the former illness but many can be said to have made an adjustment which pleases both the patients and their families.

Anesthesiology, New York

9:573-686 (Nov.) 1948

Tachycardia in Children During Anesthesia. Katherine Jackson.—p 573.
Clinical Experience with Methadon (Dolophine). A. C. Kirchhof and N. A. David.—p. 585.
Anesthesia: XXX. Anesthetic Properties of Cyclobutane: Preliminary Report. J. C. Krantz Jr., C. J. Carr, J. F. Vitcha and Marie A. Andersch.—p. 594.
Spinal Epidural Block. E. D. Lawrence.—p. 601.
D-Desoxyephedrine: Comparison with Certain Other Vasopressor Drugs. E. L. Yeakel Jr. and T. H. Seldon.—p. 605.
Differential Spinal Block. V. Use in Investigation of Pain Following Amputation. Julia G. Arrowood and S. J. Sarnoff.—p. 614.
Anesthetic Management for Surgery Within the Thorax: Report of 309 Cases. Katherine Fisher, L. D. Lee, E. E. Stegeman and R. B. Young.—p. 623.
Anesthesia for Thoracoplasty: Use of Pentothal-Curare Mixture Supplemented with Nitrous Oxide-Oxygen. Preliminary Report. E. W. Greif, R. C. Richards and F. A. D. Alexander.—p. 637.
Satisfactory Anesthesia for Fenestration Operation. W. G. Meals.—p. 644.

Annals of Internal Medicine, Lancaster, Pa.

29:765-990 (Nov.) 1948

Bacterial Resistance to Antibiotics. C. P. Miller.—p. 765.
Hereditary Hemorrhagic Telangiectases Associated with Pulmonary Arteriovenous Fistula in Two Members of a Family. J. H. Moyer and A. J. Ackerman.—p. 775.
Pseudohemophilia. H. L. Halliwell and L. Brigham.—p. 803.
Experimental and Clinical Therapeutic Studies on Lymphosarcoma. C. P. Rhoads.—p. 811.
*Abnormal Rapid Rhythms Associated with Digitoxin Therapy. H. D. Levine.—p. 822.
The Heart in the Terminal State: Effect of Intracardial Epinephrine. E. Massie, C. H. Huguley and H. S. Stillerman.—p. 838.
Labile Diabetes: Electroencephalographic Status and Effect of Anticonvulsive Therapy. M. Fabrykant and B. L. Pacella.—p. 860.
Conditions to be Differentiated in Roentgen Diagnosis of Pulmonary Tuberculosis. L. H. Garland.—p. 878.
Protein Balance Studies in Patients with Liver Damage. II. Role of Lipotropic Agents. L. W. Kinsell, G. D. Michaels, H. C. Barton and H. A. Weiss.—p. 881.
*New Treatment for Relief of Obliterative Diseases of Peripheral Arteries. I. Mufson.—p. 903.

Abnormal Rapid Rhythms with Digitoxin Therapy.—Levine says that in 7 patients abnormal rapid cardiac rhythms developed (idioventricular rhythms, paroxysmal ventricular tachycardia or interference and dissociation) during a recent fifteen and one-half month experience with digitoxin at the Peter Bent Brigham Hospital. Because they seemed more frequent and insidious than with digitalis leaf the incidence and manner of these toxic reactions were studied in this group and in a comparable group which had received digitalis leaf. The percentile incidence of toxic rapid rhythms was greater in a group of patients receiving digitoxin than in those receiving digitalis leaf, but the difference was not statistically significant. Seven cases of digitalis poisoning among 338 patients receiving digitoxin comprised 3 instances of paroxysmal ventricular tachycardia, 3 of idioventricular rhythm and 1 of interference and dissociation. In 3 cases the dosage of digitoxin was, and in 3 it was not, excessive. In the seventh it may have been excessive. Because of freedom from local toxic effects with digitoxin, these toxic rhythms may be more insidious in their onset than with digitalis leaf. A rising ventricular rate of the sudden regularization of a totally irregular rhythm may serve as clues to the imminence in the one case, or the inception in the other, of these abnormal disturbances of rhythm.

New Treatment for Obliterative Disease of Peripheral Arteries.—Mufson suggests that a procedure which can reproduce the immediate benefits of a sympathectomy, and be repeated if new developments make it necessary, should be a useful means of treating the obliterative peripheral arterial diseases. On the basis of preliminary studies in which radioactive sodium was utilized as a measure of changes in circulation, it was found that the intra-arterial infusion of a dilute solution of histamine could approach this ideal. The author presents his experiences with this method in patients with a severe insufficiency of the peripheral arterial circulation of their lower extremities caused by an endarteritis obliterans due to thromboangiitis or arteriosclerosis. In order to overcome the pressure in the femoral artery the infusion bottle had to be prepared in a special manner. With the method described over five hundred arterial punctures have been made and at no time have complications resulted. The solution consisted of 500 cc. of isotonic sodium chloride to which was added between 1.38 and 2.75 mg. of histamine acid phosphate, equivalent respectively to 0.5 mg. and 1.0 mg. of histamine base. The infusion was given weekly and, if the symptoms were totally disabling, biweekly. The dropping rate was measured in the drip indicator during the diastolic fall in pressure during which inflow into the artery took place. It was found that between 2 and 5 drops per heart beat permitted an erythema of the thigh to develop without subjective symptoms. The author describes the results obtained with this treatment in terms of oscillometric readings of the leg treated and in regard to two factors: The first is the number of blocks the patient is able to walk before he is forced to stop by pain in the calf of his leg; the second is sleep tolerance, which represents the number of hours the patient can lie in bed in a horizontal position before he is awakened by pain in his calf muscles and forced to get out of bed for relief. He found that walking tolerance was raised in more than four fifths of the patients treated and the pain present during sleep was abolished in all.

Archives of Neurology and Psychiatry, Chicago

59:691-858 (June) 1948

Activation of Seizures and Electroencephalographic Disturbances in Epileptic and in Control Subjects with "Metrazol." C. Cure, T. Rasmussen and H. Jasper.—p. 691.
Role of Afferent Impulses in Experimental Convulsions. E. Gellhorn and H. M. Ballin.—p. 718.
Winking-Jaw Phenomenon. R. Wartenberg.—p. 734.
Responses to Thermal Stimuli Mediated Through Isolated Spinal Cord. M. B. Macht and R. A. Kuhn.—p. 754.
*Trypan Red Therapy of Amyotrophic Lateral Sclerosis: Preliminary Report. R. B. Aird.—p. 779.

Trypan Red Therapy of Amyotrophic Lateral Sclerosis.—Aird says that previous studies on the supravital dyes, vital red and trypan red, have shown that these acid dyes lower the permeability of the blood-cerebrospinal fluid barrier and the blood-brain barrier for various test agents, such as cocaine and triphenylphosphite. This effect is associated with the protective action of the dyes in both experimental epilepsy and human convulsive states. There was evidence which suggested that these dyes might have therapeutic value in toxic and degenerative diseases of the central nervous system. The present report is a preliminary account of experiences over the past seven years with the use of these dyes in 12 cases of amyotrophic lateral sclerosis. The report is limited to 12 cases in which a follow-up has been maintained over at least two years. One per cent solutions of vital red and trypan red were prepared with triple-distilled water. The solutions were sterilized after Seitz filtration and injected intravenously with the usual aseptic technic. In most instances 20 cc. of vital red was injected daily for five days, making a total dose of 100 cc. Daily injections of 10 cc. of trypan red were then given for five to eight days, followed by similar injections every second day for three or four doses and every three or more thereafter up to a total dose of 25 mg. per kilogram of body weight. The course of injections required from four to five weeks and resulted in a brilliant staining of the skin and conjunctival vessels. The scleras were stained a light pink. The dyes were excreted chiefly via the intestine, and secondarily by the sweat glands and the nasal and oral secretions. Illustrative case reports are given to indicate the type of neurologic alterations observed in some cases. Fasciculations were diminished in the majority of patients; the rate of progress was suggestively slowed in nearly half the patients, and an arrest apparently occurred in 2 patients. Although no final conclusions may be drawn from this limited study, the relation between treatment and improvement in several patients appeared more than coincidental, especially in those patients in whom a recurrence of the disease process, following discontinuance of the treatment, was again modified when adequate dye therapy was resumed. The results seem to establish a toxic cause of amyotrophic lateral sclerosis. The study suggests that muscular fasciculation is not a reliable index of the progress of the disease. The results appear sufficiently encouraging to warrant further trial.

New England Journal of Medicine, Boston

239:845-902 (Dec. 2) 1948

Nontuberculous Spinal Epidural Infections. A. P. Heusner.—p. 845.
Progress in Group Psychotherapy: Summary of Literature. W. B. Terhune and J. R. Dickenson.—p. 854.
Local Health Services in Massachusetts. R. E. Archibald, A. Fiore and S. L. Skvirsky.—p. 858.
Further Studies in Use of Furacin in Dermatology. J. G. Downing and F. W. Brecker.—p. 862.
Clinical and Pathological Aspects of Encephalitis. R. D. Adams and L. Weinstein.—p. 865.
Carcinoma of Parathyroid Gland.—p. 894.
Submucous Lipoma of Transverse Colon, with Previous Intussusception. —p. 897.

New York State Journal of Medicine, New York

48:2655-2764 (Dec. 15) 1948

The Female Perineum: Its Structure, Function, and Preservation. R. J. Pieri and F. C. Meyer.—p. 2693.
Some Associated Eye and Skin Manifestations of Systemic Disease. I. Givner.—p. 2700.
Nutritional Requirements in Convalescence. H. Pollack and J. Bookman. —p. 2706.
*Postoperative Iridocyclitis. A. C. Snell Jr.—p. 2710.
*Prevention of Deafness by Elimination of Hypertrophied Lymphoid Tissue in Nasopharynx by Radium Therapy. J. C. Scal.—p. 2715.
Intraperitoneal Use of Streptomycin. A. A. Zingaro.—p. 2718.
Hydrolyzed Oral Hay Fever Antigens. H. M. Feinblatt and E. A. Ferguson Jr.—p. 2720.
Fallacy of Hydrochloric Acid Interpretations in Gastric Surgery. E. O. Finestone.—p. 2724.
Radiographic Pneumoperitoneum in Acute Perforations of Gastrointestinal Tract. S. A. Kornblum.—p. 2726.

Postoperative Iridocyclitis.—Snell believes that the incidence of iridocyclitis following intraocular surgery indicates a causal relationship between surgery and iridocyclitis. Reviewing the mechanisms by which surgical interference can provoke intraocular inflammations, the author lists the following factors: tissue traumatization, lenticular remains, intraocular hemorrhage, loss of vitreous, neurotrophic effects, low grade bacterial infection, virus infection, intraocular foreign bodies and allergic reactions to uveal pigment.

Hypertrophied Lymphoid Tissue and Deafness.—Scal shows that irradiation has proved beneficial in conductive deafness due to obstruction of the pharyngeal end of the eustachian tube by hypertrophied lymphoid tissue. Radium is superior to roentgen therapy for the destruction of hypertrophied lymphoid tissue in the nasopharynx, because a greater dosage of roentgen rays must be used and intervening tissue is apt to be affected. Radium gives off alpha, beta and gamma rays. The irritating alpha rays are completely absorbed and screened by the walls of the metal applicator. The beta rays are absorbed by the superficial layers of the tissue, and the therapeutic gamma rays give the desired effect by acting on the nuclei and germinal centers of the cells, causing their disintegration and thus inhibiting mitosis. This prevents the further growth and functioning of the new lymphocytes to replace those destroyed, so that the mass of hypertrophied lymphoid tissue shrinks and disappears completely. The basis of this report is a series of 50 patients treated by the author, most of whom were referred for impairment of hearing, repeated attacks of nasal colds and infected ears. The results obtained were gratifying, as most of these patients showed improvement, while some even experienced a return to normal hearing. A few typical cases are reported. This therapy also eliminates the source of infection which may account for bronchitis and asthma in children. Aviators and passengers in planes who experience hearing disturbances following rapid descent from high altitudes should seek immediate treatment to eliminate causes which may interfere with proper ventilation of the middle ear. Where hypertrophied lymphoid tissue is found in the nasopharynx, radium therapy should be applied to prevent progressive deafness.

Puerto Rico J. Pub. Health & Trop. Med., San Juan

23:471-578 (June) 1948

Studies on Edible Yeasts. J. A. Goyco and C. F. Asenjo.—p. 471.
Use of BAL in Heavy Metal Poisoning, with Particular Reference to Antimonial Intoxication. D. S. Stevenson, R. M. Suárez Jr. and E. J. Marchand.—p. 533.

Review of Gastroenterology, New York

15:867-958 (Dec.) 1948

Effect of Antitoxic Principle upon Hepatobiliary Diseases. J. Nasio. —p. 877.
Clinical Gastroenterology. H. W. Soper.—p. 911.
*Case of Carcinoma of Rectum Diagnosed by the Cytologic Method. L. L. Mackenzie and E. L. Hecht.—p. 915.
Diverticulosis and Carcinoma of the Colon. S. M. Gilbert.—p. 917.
Symptomatology of Peptic Ulcer. F. Vogel.—p. 922.

Carcinoma of Rectum Diagnosed by Cytologic Method.—Mackenzie and Hecht say that at the gynecologic cytology laboratory of the New York Post-Graduate Medical School and Hospital they have been utilizing the smear technic in suspected lesions of the large bowel in an attempt to determine the efficiency of this method in early diagnosis. The patient whose case is reported was a woman, aged 56, who was complaining of alternate attacks of diarrhea and constipation of seven months' duration. Three aunts had died of cancer of the breast. The patient herself had had a hysterectomy at 38 years of age and a thyroidectomy for adenoma of the thyroid. Her present illness had begun with bouts of diarrhea characterized by frequent, loose bowel movements with traces of blood. She was treated medically for hemorrhoids with symptomatic relief. In the four months prior to admission, progressive constipation became the most prominent symptom. By sigmoidoscopy a lesion was seen. Smears taken from the rectum by means of a bulb pipet showed large numbers of typically malignant cells. The patient was subjected to an abdominoperineal resection of the rectosigmoid. Microscopic sections through the tumor mass revealed adenocarcinoma infiltrating all coats. The patient's postoperative course was uneventful. She was discharged on the nineteenth postoperative day, in good condition. This case illustrates the importance of the smear technic in malignant neoplasms of the large bowel.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

56:605-664 (Dec.) 1948

*Costal Arch Resection—A Substitute for Transthoracic Approach to Upper Abdominal Pathology. L. P. Gambee and A. Ingala.—p. 605.
Maternal Mortality: Analysis of Ten Year Period (1937-1946) at Cincinnati General Hospital. R. D. Bryant and N. S. Assali.—p. 611.
Common Surgical Problems in Pediatrics. M. McKirdie.—p. 619.
Bilateral Simultaneous Tubal Pregnancy. R. R. Maier.—p. 624.
Report of Two Cases of Primary Ovarian Pregnancy with Review of Literature. A. Bernstein and H. C. Bernstein.—p. 627.

Costal Arch Resection a Substitute for the Transthoracic Approach.—Gambee and Ingala have found a resection of the costal arch on the left a useful substitute for the transthoracic approach to pathologic conditions situated under the left diaphragm. The authors describe and illustrate the technic and stress that the costal arch is the major obstacle in gaining access to the subdiaphragmatic viscera. Adequate access to these viscera can be obtained by transecting the recti and extending the incision over the costal arch so that it can be removed. The pleural cavity is not invaded. Closure and healing of this incision has been remarkably free of complications or sequelae. The maximum advantage cannot be gained by this approach unless the surgeon stands on the left side of the operating table.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Lancet, London

2:877-914 (Dec. 4) 1948

Scientific Construction of Normal Child's Diet. A. Brown.—p. 877.
*Surgery of Portal Hypertension: Account of 16 Cases. J. R. Learmonth and A. I. S. Macpherson.—p. 882.
Hemophilus Influenzae Meningitis: Four Cases Treated with Streptomycin. Janet D. Roscoe and M. H. Gleeson-White.—p. 885.
Folic Acid in Treatment of Agranulocytosis. J. H. Waelsch.—p. 888.
Paracentesis in Pyopericardium. W. E. Gibb.—p. 891.

Surgery of Portal Hypertension.—Learmonth and Macpherson report their experiences on 16 patients subjected to operation in the hope of relieving the symptoms of portal hypertension, either by constructing venous shunts, or, when the portal obstruction was limited to the splenic vein, by splenectomy alone. The authors cite 9 patients in whom lienorenal venous anastomosis was done. In 6 of the 8 who survived this operation, there has been no further hematemesis after intervals varying from four to twenty-four months, and their general condition has been much improved. In 3 other patients performance of a lienorenal anastomosis was intended, but this intention had to be abandoned because the available veins were unsuitable, and splenectomy was done instead. In 1 patient with extreme cirrhosis and ascites only laparotomy was done. This patient died twenty-eight days after operation. In 3 other patients the obstruction to the portal circulation was in the splenic vein and the hematemesis, which was the main symptom, was due to hemorrhage from grossly dilated collaterals about the cardia which connect the vasa brevia to the systemic circulation and to the left gastric vein. The liver was normal and ascites absent; the history was characteristically episodic, incidents of bleeding, beginning even in infancy, being separated by long intervals of health. In these patients splenectomy has been a satisfactory method.

Medical Journal of Australia, Sydney

2:509-536 (Oct. 30) 1948

Histiocytic Reticulosis in Infants. R. D. K. Reye.—p. 509.
Allergic Diseases and the Nose. C. Sutherland.—p. 513.
*Cretinism Associated with Methyl Thiouracil Therapy. G. M. Hone and I. Magarey.—p. 524.

Cretinism Associated with Methylthiouracil Therapy.—Hone and Magarey report the case of a woman, aged 28, in whom signs of hyperthyroidism were discovered while she was in her second month of pregnancy. Treatment with methylthiouracil was instituted and continued throughout her pregnancy. She never showed evidence of excessive dosage of methylthiouracil. A female child was born to her at term without difficulty. The child showed signs of cretinism and died after one day of life. At necropsy the thyroid was found greatly enlarged and microscopic examination revealed much vascular engorgement and increase in fibrous tissue. There was great hyperplasia of the glandular tissue, and the acini, which were lined with low columnar epithelium with central nuclei, contained no colloid. It seems reasonable to ascribe the manifestations of cretinism in this baby to the effects of methylthiouracil, because cretinism recognizable at birth is rare in this region, and also because hyperplasia of the thyroid gland in the newborn is well known to follow the treatment of thyrotoxic mothers with this drug.

Tubercle, London

29:269-292 (Dec.) 1948

*Silent Renal Tuberculosis. J. H. Carver.—p. 269.
Tracheotomy for Tuberculous Laryngeal Stenosis, with Case Report. T. A. W. Edwards.—p. 274.
Tuberculous Cavitation of Lungs in Infancy with Report of Case. T. N. Nauth-Misir.—p. 277.

Silent Renal Tuberculosis.—Carver applies the term silent renal tuberculosis to a form of renal tuberculosis without urinary symptoms. It may exist unsuspected for many years before attention is drawn to it in the course of routine examination, by the occurrence of tuberculosis elsewhere or by the disturbance of neighboring organs such as the stomach and duodenum. Six cases are reported to illustrate this condition. Four of the patients were operated on with satisfactory results. In one case operation was not thought to be necessary, and in another the patient died of miliary tuberculosis and secondary infection. This condition involves the danger of miliary tuberculosis, metastatic tuberculous disease, secondary infection and disturbance of local organs. Operation is indicated in all cases except those in which there have been no symptoms, either general or local, for many years and in which the kidney is small and the calcification dense.

Harefuah, Jerusalem-Tel Aviv

35:55-64 (Oct. 15) 1948. Partial Index

*Triangular Shadow in X-Ray Pictures of Lung Taken in Lordotic Position. O. Lichtwitz.—p. 55.
Vaccination Against Tuberculosis with BCG. A. Zifrony.—p. 57.
Intoxication with DDT. R. Sterlinger.—p. 59.

Triangular Shadow in Roentgenogram of Lung Taken in Lordotic Position.—Lichtwitz presents observations on 7 children with tuberculosis. These cases demonstrate the importance of making roentgenograms in the lordotic position, also. Contrary to current opinion the triangular shadows in the lower field of the right lung seen in the lordotic position are only rarely due to an interlobar exudate. They are mostly a manifestation of lobar atelectasis in the middle lobe on the right side. These atelectases, frequently combined with bronchiectatic spots, usually result from the fact that a bronchus is compressed by tuberculous enlargement of lymph nodes of the hilar region. This is a characteristic form of tuberculosis in children and was formerly often referred to as epituberculosis.

Sang, Paris

19:417-520 (No. 7) 1948. Partial Index

Influence of Gemellary Pregnancy on Erythroblastosis. L. Hirszfeld, I. Lille-Szyszkowicz and S. Mossor.—p. 417.
Treatment of Leukemias. A. Baserga.—p. 419.
Two Classifications of Rh Factors. P. Moureau.—p. 424.
Late Polynucleosis Due to Benzene. J. Bousser.—p. 430.
Hemorrhagic Thrombopathy Due to Benzene, with Little Deficiency in Thromboplastin in Parallelism to Morphologic Alteration of Platelets. P. Croizat, J. Favre-Gilly and P. Morel.—p. 435.
Myeloid Leukemia with Polynucleosis and Polyglobulism. P. Émile-Weil and S. Perlès.—p. 442.
Average Bleeding Time; Statistical Information. J. Roskam.—p. 448.
*Hemolytic Anemia Produced by Cold Agglutinins. L. Heilmeyer and H. Schubothe.—p. 473.

Hemolytic Anemia Produced by Cold Agglutinins.—Heilmeyer and Schubothe report 4 cases of severe hemolytic anemia with icterus and urobilinuria in patients between the ages of 53 and 74. The patients complained of fatigue, diminished capacity for work and headache. When exposed to cold air they presented pronounced acrocyanosis. The patients felt better in summer. The anemia became worse during winter. One of the patients had a tendency to thrombosis of the veins of the extremities which had been exposed to cold. Examination of the blood revealed a hemolytic anemia with macrocyte regeneration and diminished resistance (Dyke-Young type). The sedimentation rate was increased considerably. At normal room temperature the erythrocyte count could not be carried out because of agglutination of the erythrocytes. The erythrocyte count could be made when the glass tube and the room were heated to 40 C. (104 F.). At this temperature the sedimentation rate was reduced. In 2 of the patients the hemolysis could be proved experimentally by cooling the hand of the patient in an ice bath for ten minutes, and by taking the serum from the cubital vein before and after the bath. It was impossible to take blood from 1 of the patients in a cold room, because thrombosis occurred immediately at the area of puncture. A large thrombus could be removed from the cooled vein. The cold agglutinins which produced the hemolytic anemia were autoagglutinins, isoagglutinins and heteroagglutinins, since they agglutinated not only the patients' own corpuscles when the temperature was reduced, but also those of other persons and of several animals. The prognosis in these cases is unfavorable, and death occurs in the course of several years. It is suggested that this hemolytic anemia may be a late sequela in sensitized persons of an atypical infection with cold agglutinins.

Book Notices

Physical Examination of Selective Service Registrants. Special Monograph No. 15. Volume I: Text [Appendices A-C]. Volume II: Appendices D-E. Volume III: Appendix F. Paper. Pp. 319; 347; 374. Selective Service System, Washington, D. C., 1947; Supt. of Doc., Government Printing Office, Washington 25, D. C., 1948.

These three volumes deal with the record of physical examinations in connection with Selective Service registrants. Volume I contains the text and two appendixes. Volume II is an appendix devoted to the various memoranda and articles governing the procedure of the physical examination of draftees. Volume III is an appendix containing the statistical tables.

Many months of study could be devoted to the details in these publications. The principal significance of these figures at this time is the use made of the alleged percentages of rejections to support of the claim that they reflect a deplorable state of the nation's health. This argument should be settled once and for all by a quotation from these official publications by the United States Government and over the signature of Major General Lewis B. Hershey, Director of the Selective Service System:

> In the light of the preceding statements, it is evident that the men examined through Selective Service processes were not altogether representative of the total male population in their age groups. Losses to the examined group resulted from deferments for dependency, occupation or overage, and also from voluntary enlistment. Within the examined group further restrictions on the men availaable at certain periods were imposed by nonacceptaance of educationally deficient registrants and those with limited service defects or by changes in standards pertaining to other physical defects.

Another indication of the unreliability of any except the most statistically expert and scrupulously exact interpretations of draft figures is the frequency of major changes in physical standards from January 1942 to February 1946; in these four years there were twenty-nine major changes, or an average of more than one change in every sixty days. In some instances these changes came as close together as thirty days.

Rightly interpreted these draft figures should give interesting and useful information for the improvement of the nation's health through sane extension of public health programs and public health education.

A Method of Anatomy: Descriptive and Deductive. By J. C. Boileau Grant, M.C., M.B., Ch.B., Professor of Anatomy in the University of Toronto, Toronto, Canada. Fourth edition. Cloth. Price, $7. Pp. 852, with 800 illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

In this edition many parts have been rewritten, numerous figures have been added to the original list of illustrations, to make a total of 800; about 60 have been redrawn or otherwise improved.

The first section of the volume deals with the generalities of the several bodily systems. Osseous structure is considered from both microscopic and gross aspects. Musculature is described on the bases of fascicular architecture, of physiologic mechanism and of the familiar structural and topographic points of view. In the section on the vascular system, the author considers blood volume, character of arteriovenous anastomoses and the nature of sinusoids, end arteries and cavernous tissues. Many helpful facts are recorded regarding vascular patterns in such special areas as nail bed and lip, cerebrum and spleen, and erectile bodies; topographically different parts are thus grouped on the basis of peculiarity in blood supply. By this scheme the reader is introduced to a rationalizing pattern of study. The nervous, digestive, respiratory, urinary and reproductive systems are similarly treated in this preliminary section. The regional accounts follow, a section being devoted to each of the major subdivisions of the body. A closing section covers the autonomic nervous system, body types, the separate elements of the skeleton.

In each of the sections anatomic detail is handled cleverly through reference to simple mechanical principles; familiar physical concepts are abundantly cited in order to render otherwise difficult structural facts readily manageable. For example, the inguinal canal is likened to a channel whose roof consists of three arcades contributed by a trilaminar wall; the liver is described as resembling an oblong block; the space enclosed by the femoral triangle, with its prolongation as the adductor canal, is likened to a funnel with an elongate spout.

The section on the anatomy of the thorax, in addition to dealing with the regular segregated items, discusses such varied general topics as posture, the alteration in form of bronchial ramification and the development of the heart and great arteries. The section on the anatomy of the head and neck is, like the preceding sections, replete with diagrammatic figures.

The "Method of Anatomy" resembles a manual more closely than it does a standard textbook or a dissection guide. However, it differs from a regular manual in presenting concepts as well as morphologic detail.

The book is unique and ingenious in teaching anatomy in such a way as to stress underlying principles, rather than segregated facts. Only a gifted and experienced teacher could formulate as many valuable notions as Professor Grant has included in his unusual volume.

Professor Grant's provocative volume has replaced the standard textbooks in some laboratories. Even where it has not, the book could most profitably be added to the student's library. For the advanced reader its content is inspiring; the surgical anatomist will find it extremely helpful as a source book for lecture material, and the novice in gross anatomy, who places partial dependence on its text and pictures, will be carried the more enthusiastically through courses which are traditionally too didactic.

General Cytology. By E. D. P. De Robertis, M.D., Department of Biology, Massachusetts Institute of Technology, Boston, W. W. Nowinski, Ph.D., Department of Anatomy, University of Texas Medical School, Galveston, and Francisco D. Saez, Ph.D., Institute for the Investigation of Biological Sciences, Montevideo. Translated by Warren Andrew, Ph.D. Cloth. Price, $5.50. Pp. 345, with 143 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London W.C. 2, 1948.

This is a presentation of the more important methods and the main lines of study now being pursued in modern cytology. Current theories are summarized and attempts are made to correlate them with the results of conventional cytologic investigation. The scope of this book is reflected by the subjects of its main subdivisions: (1) the historical background of the cell theory and the constitution of protoplasm; (2) the chemical and physicochemical organization of the cell; (3) a somewhat detailed presentation of the morphologic organization of the cell and (4) its submicroscopic organization; (5) the morphology and functional significance of cytoplasmic organoids; (6) the plasma membrane and cell permeability; (7) the structure and chemical composition of the nucleus in the interphasic state; (8) the chromosomes and cell division; (9) an extended presentation of cytogenetics; (10) enzymes and cell respiration; (11) the visible manifestations of cellular activity, and (12) differentiation, senescence and death of cells.

A textbook on cytology which would present and document the impact of current physiologic, biochemical and physical chemical research on classical concepts of the cell and on current morphologic research is greatly needed. The compilation of such a text is a formidable task because the range of topics extends from pure physics and physical chemistry to morphologic cytology. In this book, the basic physicochemical concepts are presented at a level somewhere between a well substantiated account for elementary students and the definite language of an advanced treatise. This level of presentation imposes on the authors the necessity for well chosen interpretive statements, which are all too often lacking. Thus one can but question whether the pages on coacervates and on tactoids are sufficiently well documented to provide the student with an accurate description of the subject and whether the brief discussion of crystal structure as determined by roentgen ray diffraction serves its purpose. The student anxious to understand the chemistry of protoplasm will find a more satisfying discussion in several of the chapters in the "Physical Chemistry of Cells and Tissues" by Höber and his collaborators. Similarly, the problems of permeability are handled more authoritatively in Höber's book and in the monograph by Davson and Danielli. One would hope that in a book in which so much attention has been paid to mitosis and meiosis in its genetic aspects there would have been a discussion of the theories of the forces involved in cell division.

The authors undoubtedly know the difficulty of the job which they have undertaken and realize that the fields considered are too vast to be treated authoritatively in the small confines of this book. However, this presentation will undoubtedly be of great service to students in orienting them to the actively developing fields of modern cytology. The references to significant articles are well chosen. The illustrations are good.

Annual Review of Biochemistry. Volume XVII. Editor: J. Murray Luck. Associate Editors: Hubert S. Loring and Gordon Mackinney. Cloth. Price, $6. Pp. 801. Annual Reviews, Inc., Stanford, California, 1948.

Volume XVII of the Annual Review of Biochemistry lives up to the high quality and usefulness of the preceding books of this series. Included in this review are seven by foreign authors.

Review of this volume concerns biologic oxidations and reductions; nonoxidative enzymes; the chemistry of the carbohydrates, and the immunopolysaccharides; roentgen crystallographic studies of compounds of biochemical interest; the chemistry of the lipids, proteins and amino acids, nucleoproteins, nucleic acids and related substances; metabolism of carbohydrates, lipids, protein and amino acids, and drugs and toxic substances; clinical applications of biochemistry; the biochemistry of hormones, vitamins and their clinical aspects; biochemistry of carcinogenesis; biochemistry of natural pigments, terpenes and alkaloids; photosynthesis, mineral nutrition and hormones of plants; bacterial metabolism; the chemistry of penicillin, ruminant digestion, and physiologic aspects of genetics.

The editors announce the proposed publication in 1950 of several new annual reviews in medicine, plant physiology, psychology and physical chemistry. Many of the topics currently reviewed in the Annual Review of Biochemistry will be transferred, in the future, to the appropriate new volumes.

Clinical Roentgenology of the Digestive Tract. By Maurice Feldman, M.D., Assistant Professor of Gastroenterology, University of Maryland, Baltimore. Third edition. Cloth. Price, $8. Pp. 901, with 641 illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

The author has again revised and enlarged his excellent text on roentgenology of the gastrointestinal tract, presenting in twenty chapters all the roentgenologic phases of gastrointestinal tract disease. Each disease entity is thoroughly discussed in classical manner under general discussion, pathology, site, age and sex incidence, clinical signs and symptoms and roentgen diagnosis.

The statistical data which are so well correlated with the subject material are a special feature of the text which enhance its usefulness. These, along with the excellent bibliography which is placed at the end of each section, have earned for this publication a place on the shelf of all gastroenterologists, roentgenologists and, for that matter, general practitioners.

The illustrations are numerous, well selected and usually self explanatory, but they carry their own explanatory notes.

The section on diseases of the gallbladder alone is worth the price of the book. It presents material on the subject which is found in no other text in such easily comprehensible form. The anatomy, physiology and pathology of gallbladder disease are reviewed. The technic of cholecystography is carefully described and the dyes used in the examination are analyzed as to their relative clinical values and contraindications. The postoperative gallbladder is also discussed in detail.

The text will be read, discussed and much referred to by all physicians interested in nutritional disorders.

The Diabetic A B C: A Practical Book for Patients and Nurses. By R. D. Lawrence, M.A., M.D., F.R.C.P., Physician in Charge Diabetic Department, King's College Hospital, London. Tenth edition. Boards. Price, 4s. Pp. 80. H. K. Lewis & Co., Ltd., 136 Gower St., London, W.C1, 1948.

This little volume, written for the layman with diabetes, brings out the practical points in his daily routine of treatment. It is written in simple language. The fact that this is the tenth edition indicates its popularity in England. It includes the following points: What diabetes is and the principles of its treatment; the line rationed diet; examples of diet; insulin treatment; hypoglycemia; what to do when ill; diabetic cooking; recipes and food values, and care of the feet. Thus the author has brought out and summarized the essential points of the understanding of the diabetic condition and the necessary routine of treatment, bringing out many practical points which only a physician thus experienced could do. The line estimation of the food values which has become generally adapted in England is not used in the United States and is at first difficult to follow. It has, on the whole, simplified the dietary routine for the British. The one statement of the author on page 55, "Diabetics who eat fresh vegetables and fruit will receive enough of all the vitamines," interested the reviewer, who has held and taught the same for decades; it could well be followed in this country, where we are flooded with expensive vitamins. "The Diabetic A B C" is a compact, practical and well balanced little work unburdened with unnecessary preaching of unessentials.

Textbook of Chiropody. By Margaret J. McKenzie Swanson, B.Litt., F.Ch.S., Co-founder of Edinburgh Foot Clinic and School of Chiropody, Edinburgh. Cloth. Price, $5. Pp. 212, with 168 illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

This book covers much material with which a chiropodist is apt to be confronted. He should know about these disorders and is specifically advised to consult a physician. The book can be read with profit by any one interested in the care of the feet.

Many conditions are mentioned which do not call for treatment by a chiropodist; he must, however, be able to recognize them and to refer them to the appropriate specialist; e. g., a patient often thinks he has a "suppurating corn" when he really suffers from a diabetic ulcer.

The subject matter covers posture and some results of malposture of the foot, skin abnormalities, conditions affecting toe nails, muscles and tendons, bones and joints, the circulation and the nerves. Shoe paddings and foot strappings are well covered.

The illustrations are excellent and a good glossary is appended.

Kosmetik und allgemeine Pathologie. Von Dr. Med. Franz Halla. Paper. Price, $2.50. Pp. 118. Wilhelm Maudrich, Spitalgasse 1B, Wien IX/2; imported by Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1948.

"Kosmetik" according to the author is the "preservation of a good state of health of the skin, or the achievement of such." This booklet was written in an attempt to elucidate the relationship between the skin and systemic disease. The author claims that this relationship has been neglected in the medical literature, but he has apparently neglected the study of several recent publications. The result is a haphazard enumeration of various diseases and their symptoms. Important cutaneous manifestations of internal disorders, such as the frequency of moniliasis in diabetes, ulcers of the skin in colitis and similar relationships, are not mentioned. On the other hand, the author gives vent to several antiquated observations such as that tinea versicolor is an indication of tuberculosis of the lungs! The book is written in a superficial, nonscientific manner and cannot be considered a contribution of merit to the medical literature.

The Clinical Apprentice: A Guide for Students of Medicine. By John M. Naish, M.D., M.R.C.P., and John Apley, M.D., M.R.C.P. With a foreword by Professor J. A. Ryle. Cloth. Price, $4.50. Pp. 200, with 71 illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2; John Wright & Sons, Ltd., 42-44, Triangle West, Bristol 8, England, 1948.

The authors of this English textbook, essentially a handbook of physical diagnosis, have provided the medical student with a rather brief familiarization course in the art of the physical examination. The book is strictly elementary and replete not only with descriptions of physical signs and methods but with admonitions of a teacher to his pupils.

It is interestingly written and easy to read and can unquestionably serve the purpose of a refresher study to the student who has just completed his first course or two in physical diagnosis, but it is not meant to be and cannot be substituted for a complete textbook on a skill in the art of medicine which must be taught as requiring thorough study of minute detail without recourse to "shortcuts."

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

PROTECTION FROM NOISE

To the Editor:—Can anything be done to help the person who is extremely sensitive to noise? There is of course soundproofing, but I refer to something portable.
Amy Weiss, M.D., *Chicago.*

Answer.—It may be granted that some persons are much more responsive to annoyances from noise than others, although in some instances hypersensitivity occurs only on an emotional basis. Protection for the ambulatory person is difficult, and escape from some unwanted sound is almost impossible. Notwithstanding the unfavorable attitude toward ear stopples, such devices of proper selection afford a high degree of protection. Canal irritation sometimes occurs, but this becomes minimal if the stopper is properly fitted and after a period of inurement. A period of adjustment is required just as for comfort in wearing artificial dentures. Lately, an article (Grove, W. E.: The Noise Hazard, *Indust. Med.* 18:1 [Jan.] 1949) advocates the wearing of ear muffs inclosing both outer ears. Most persons object to this type of device as attracting too much attention. The wearing of self-made cotton plugs greased with petrolatum is ordinarily without irritation, and some 20 decibels of noise are thus avoided. Unrelated to air-borne noise but instead to floor-borne, the wearing of rubber soles and heels provides a low degree of protection. Additional information may be procured through the National Noise Abatement Council of New York City, but, in general, adequate studies related to the individual are few and inadequate.

RECURRENT HERPES OF PENIS

To the Editor:—A 30 year old white man gives a history of a recurrent vesicular eruption on the penis for the last seven years. The eruption occurs on an average of every two weeks, so that almost as soon as the eruption involves another crop occurs. A diagnosis of recurrent herpes progenitalis was made, since the typical herpetic eruption could be seen during several office visits. General physical condition is good; a negative Kahn reaction was obtained repeatedly, and in the past many dark field examinations were negative. Contact dermatitis is ruled out—condoms are not used. The patient is married, and unless he is allergic to his wife's vaginal secretions, I cannot account for external irritation. The patient was given seven consecutive smallpox vaccinations at two week intervals and three consecutive treatments with low voltage roentgen rays —75 r each, at weekly intervals, over the penis in the areas where the eruptions usually recur. The eruption continues to recur. Can you suggest further therapy? I am having the patient use 2 per cent aluminum acetate solution (aqueous) but the eruption will recur, dry up, recur ad infinitum.
M.D., *Ohio.*

Answer.—Sometimes immunity from repeated attacks of herpes can be obtained by vaccinating with the contents of a fresh vesicle. Some physicians prefer this method to vaccination with smallpox vaccine, for the method can be repeated if necessary without risk of any sort to the patient. Others prefer the smallpox vaccine but by intradermal vaccination rather than by the usual scratch or punch method. Usually a tube of vaccine is diluted first with 0.1 cc. of isotonic sodium chloride solution and then injected intradermally every few days if necessary.

GROWING PAINS

To the Editor:—A boy patient, aged 5, complains of pain in his legs. He wakes up at night crying and screaming, telling his mother that his legs ache and hurt. A thorough examination, including an orthopedic consultation, reveals nothing of significance. What is the treatment of growing pains, or muscular spasms in young children?
H. W. Stevens, M.D., Wilson, N. C.

Answer.—Although no one knows the exact mechanism of growing pains, many believe that they are like a "charley horse" in athletes, and can be prevented by less vigorous exercise and an increased intake of sodium chloride and calcium salts. Heat and massage usually alleviate the pain.

INHERITANCE OF EYE COLOR

To the Editor:—Is it impossible for two blue-eyed parents to have a brown-eyed child?
C. B. Shaw, M.D., Huntsville, Texas.

Answer.—Inheritance of eye color is more complicated than was formerly believed. One study showed about 5 per cent of brown-eyed children when both parents were blue-eyed.

MOLD SENSITIVITY

To the Editor:—A boy, age 2½ years, has had eczema since birth and asthma since 1 year of age. The mother has eczema and hay fever. Skin testing showed the baby to be sensitive to many things, especially wheat, rice, rye and molds (Alternaria and Hormodendrum). The eczema cleared one year ago on anti-allergic diet, but the asthma has been increasing in severity. It is relieved by epinephrine but unaffected by antihistaminic drugs and aminophylline. Six months ago he had an attack of pneumonia and was moderately ill. During the last hospitalization, one month ago, he became completely free of wheezing for the first time in one year. Asthma is worse on low pressure days. Relation to other conditions has not been noted. To what would the subsidence of symptoms be attributed? The pediatrician recommends desensitization to the molds Alternaria and Hormodendrum. What could one expect from this desensitization?
R. S. McClintock, M.D., Charlevoix, Mich.

Answer.—The history is essentially that of asthma in a young child who became free when hospitalized. The subsidence of the asthma may be explained by any of a number of possibilities—the end of the mold season, the removal of the child from his allergenic environment at home (dog, dust, etc.), the relative freedom from symptoms following a severe attack and the change of psychologic environment.

As regards the advisability of desensitization with Alternaria and Hormodendrum, not sufficient data are given here to justify an opinion. If the child's allergy is worse from the spring to fall, better in winter, worse on windy or hot days, then clinical mold allergy is probably present and demands desensitization. The results under such conditions can be expected to be satisfactory, although prolonged treatment is usually required.

ZINC CHILLS

To the Editor:—A patient of mine reports that he and co-workers welding galvanized iron with an electric arc almost always experience chills, dizziness and aching throughout the body, sometimes associated with nausea. There is an exhaust system in the plant and they wear a mask with some benefit. The condition seems to develop after about four hours of work and they recover spontaneously in eight to ten hours. I would appreciate any information you can give me regarding etiology and a method of control.
M.D., Utah.

Answer.—This query provides an excellent minor description of "zinc chills" or metal fume fever. The high temperature of the electric arc vaporizes the zinc of the galvanized coating. This condition is always acute, there being no known chronic state or cumulative effects. Some degree of tolerance is acquired, but this may be quickly lost even over a week end of no work. In the absence of full details as to the work operations, possible methods of control must be stated as generalities. 1. If practiced, galvanizing should follow rather than precede welding. 2. The galvanized coating may be removed by chemical stripping of the areas to be welded prior to that operation. 3. If arc welding may be replaced by spot welding, less zinc fume will arise. 4. Work in booths with proper local exhausts will eliminate exposure. 5. The wearing of suitable respirators, however onerous, will afford protection. 6. In some instances, automatic welding may be substituted for hand welding.

Metal fume fever is never direful. However, it constitutes a troublesome, characteristic occupational disease.

TREATMENT OF EPILEPSY

To the Editor:—Please classify the various forms of petit mal and grand mal and give characteristics of each and treatment for each.
M.D., Massachusetts.

Answer.—Forms of the so-called petit mal triad (J. A. M. A. 129:1069, 1945) are: petit mal proper, also called pyknoepilepsy (five to twenty seconds of unconsciousness with only minimal rhythmic clonic movements); myoclonic jerks (sudden, lightning-like flexion of major muscles), and akinetic seizures (sudden loss of postural control). The medicine usually most effective for all three types is trimethadione (tridione®). A grand mal is a generalized convulsion. The most frequently used anticonvulsants are: diphenyl hydantoin (dilantin®), methylphenylethyl hydantoin (mesantoin®) and phenobarbital (luminal®). A convulsion that has one-sided or localizing features (focal grand mal) or one that begins as a "march" of involuntary movement or sensation (jacksonian epilepsy) may call for neurosurgical as well as drug therapy. Trimethadione and methylphenylethyl hydantoin in rare instances prove toxic to sensitive persons. The blood of patients taking these medicines should be examined monthly for evidence of bone marrow toxicity. A more complete discussion and list of drugs will be found in books recently published (e. g.: Cecil, R. L.; McDermott, W., and Wolff, H. G.: A Textbook of Medicine, ed. 7, Philadelphia, W. B. Saunders Company, 1947. Epilepsy, Proceedings of the Association for Research in Nervous and Mental Disease, Baltimore, Williams & Wilkins Company, 1948).

ANEMIA OF LEAD POISONING

To the Editor:—A manufacturing plant in Owosso has a lead poisoning hazard. My belief has been that the anemia that sometimes accompanies lead poisoning is of the secondary type and would respond only to iron therapy and that use of liver extract would be a waste. Does liver extract have any place in the treatment of lead poisoning?

A. L. Arnold, M.D., Owosso, Mich.

ANSWER.—The proper treatment of anemia of lead poisoning is to prevent it by reducing the industrial hazard. This can best be done by reducing dust and fumes.

As for the anemia of lead intoxication, it is due to a peripheral destruction of red cells and not to a primary deficiency in production. Iron, therefore, is the treatment of choice, but in severe conditions liver extract appears to be of some value as well.

GAS GANGRENE ANTITOXIN

To the Editor:—It has been my policy to protect those allergic children under my care who demonstrate moderate or severe degree of sensitivity to horse proteins by active immunization against tetanus, using the two injection technic of tetanus toxoid, renewable annually. In the event of an accidental injury such as an automobile accident the protection mentioned does not protect these children against the possibility of gas gangrene and the complications for which we give polyvalent gas gangrene antitoxin. What is the best procedure in these cases?

M.D., Wisconsin.

ANSWER.—Your plan for active immunization against tetanus is the proper one. A method for active immunization against gas gangrene is lacking. Although it must be granted that gas gangrene as an accompaniment of tetanus could occur in certain types of accidents, it is uncommon. However, should gas gangrene develop in a tetanus patient who has been actively immunized, gas gangrene antitoxin would be indicated, and desensitization should be undertaken if the patient is allergic to horse serum. If the patient had not been actively immunized against tetanus before an attack of the disease, a combination of tetanus and gas gangrene antitoxin could be used.

ASTHMA MEDICATION

To the Editor:—A patient, 39 years of age, complains of asthma. His asthmatic attacks began in 1943 while he was in the Army stationed in Louisiana. The attacks followed a severe attack of bronchitis for which he was hospitalized. At the time he was unrelieved by epinephrine, aminophylline, histamine, hapamine® (a chemical combination of histamine and despeciated horse serum), histaminase or ephedrine. He had complete bronchoscopic studies which were negative. Skin tests showed him allergic to pecans, dust and wheat. He was given a diagnosis at that time of "exertional" asthma. He moved to Indiana after his discharge, and the attacks persisted, but the peculiar thing is that the asthma is present from around 8 p.m. until close to 8 a.m. It does not keep him from sleeping. It occurs at home or anywhere else. The asthma also occurs during emotional trials and undue exertion. He is not bothered by it throughout the day. Physically he is in good health. He weighs 248 pounds (112.5 Kg.), is 6 feet 1 inch (185.4 cm.) tall and has a blood pressure of 130 systolic and 85 diastolic and a pulse rate of 78. During an attack he shows the typical signs of asthma. He has tried the aforementioned medicines including antihistamines without avail.

James D. Kubley, M.D., Plymouth, Ind.

ANSWER.—It is not clear whether the inquirer desires suggestions for symptomatic remedies or diagnostic procedures. Histamine, histaminase and hapamine® are useless in the treatment of asthma. The antihistaminic drugs as they are customarily administered are of little aid in the acute attacks, although they may help in the stage of spasmodic cough. If epinephrine (1 : 100) inhalations have not been found useful or objectionable, inhalations of isopropyl epinephrine (isuprel,® norisodrine®), are recommended. Persistent cases of this type also usually respond well to iodides, usually 10 grains (0.65 Gm.) of potassium iodide three or four times daily being proper.

An examination of the character of the sputum is not mentioned. If the asthma is of infectious origin the sputum is apt to be greenish or yellowish and will contain many pus cells. If it is allergic, the sputum will probably be colorless and will disclose many eosinophils. The latter observation particularly should suggest a restudy of the patient from the standpoint of allergy. The greater tendency for the asthma to occur during the night hours is not out of the ordinary and does not provide any special clue. Attacks appearing during emotional trials or following undue exertion are also without great significance, since no matter what the primary etiology, emotion and exertion are among a number of secondary factors precipitating asthma. The most important question to be answered in this patient is the question of the type of asthma involved (allergic, infectious, intrinsic or emotional). A more complete investigation should yield this answer.

MALE TRICHOMONAS INFESTATION

To the Editor:—A white male patient aged 28 was first seen on July 8, 1948 with a purulent urethral discharge which suddenly developed about ten days following intercourse. Stained smears revealed many pus cells but no organisms. A wet smear revealed many active Trichomonas organisms. The urine sediment also contained much pus and many Trichomonas organisms. A course of sulfadiazine, 1 Gm. four times a day for five days, had little if any effect on the discharge, but it gradually cleared up on taking methenamine mandelate tablets (two tablets four times a day for ten days). He now continues to have many Trichomonas organisms in the urine, and the prostatic secretion is loaded with pus and Trichomonas organisms. Weekly prostatic massages have not produced improvement. His serologic reactions have remained negative. Is there any satisfactory treatment for Trichomonas infections in the male?

M.D., California.

ANSWER.—The eradication of trichomonas vaginalis involves three features: detection of foci of infection, eradication of foci and prevention of reinfection.

Trichomonas vaginalis infestation of the male urethra and prostate has been effectively treated by the systemic use of carbarsone, 0.25 Gm. three times daily by mouth, for not longer than ten days in conjunction with acriflavine (1 :3,000) urethral instillations as topical treatment not oftener than twice weekly. In those patients in whom carbarsone orally has been ineffective, the intravenous use of oxophenarsine hydrochloride, 0.04 to 0.06 Gm., not more frequently than three times weekly, is recommended. The same precautions should be used as in use of pentavalent arsenic in the treatment of syphilis.

Prophylactic treatment is most important, as reinfection is common. The sexual partner of the patient should be examined carefully, and if infected should have concomitant therapy. Abstinence from sexual intercourse is necessary until both parties are free from the infestation.

TREATMENT OF THE SCALP

To the Editor:—I am writing in regard to hair and scalp treatment for girls who are losing their hair because of too frequent washings: 1. Is hydrous wool fat beneficial to hair and scalp? 2. Is glycerin beneficial to hair and scalp? 3. Would adding alcohol to hydrous wool fat and glycerin injure the beneficial properties of either hydrous wool fat or glycerin? Which would be more beneficial to the hair and scalp: (a) a mixture of hydrous wool fat and glycerin, (b) a mixture of hydrous wool fat, glycerin and alcohol, (c) a mixture of hydrous wool fat, glycerin, alcohol and rose or distilled water, (d) hydrous wool fat alone or (e) glycerin alone? I have advised gentle loosening of the scalp, an adequate diet, application of towels wrung free of warm water and paprika pepper added freely to the diet. Do you have other suggestions?

T. C. McCurdy, M.D., Rising Star, Texas.

ANSWER.—Evidence is lacking to warrant the conclusion that hair is ruined by frequent washings. Hydrous wool fat is a useful preparation to use when the scalp is dry and glycerin when the scalp is greasy. Both of them add luster to the hair by adhering to it. The addition of alcohol to hydrous wool fat or glycerin does not alter the properties of either and, since hydrous wool fat and glycerin serve opposite purposes, it would be inconsistent to combine the two in one prescription. Alcohol and glycerin mix readily but alcohol and hydrous wool fat do not.

In general, loosening of the scalp might serve a useful purpose and an adequate diet is always indicated. The application to the scalp of wet towels and the addition of paprika pepper to the diet are of doubtful value.

Gentle massage of the scalp and the application to it of a scalp lotion containing a rubefacient, an antiseptic, a keratolytic agent, if necessary, and an oily or drying vehicle (depending on the needs of the patient) are usually sufficient to keep the scalp in a healthy condition. All of the standard textbooks of dermatology contain formulas for such preparations. It is presumed, of course, that the patient will be given the benefit of a physical examination to rule out pertinent abnormalities.

LUPUS VULGARIS

To the Editor:—In Queries and Minor Notes, The Journal, Dec. 18, 1948, appeared a statement that treatment of lupus vulgaris with vitamin D_2 should be discontinued as soon as subjective symptoms of anorexia, loss of weight and polydypsia, or rise of blood sedimentation to 98 mm. occur. I should like to emphasize that more than anything else careful follow-up of the blood calcium level should and must be the principal guide whether medication with vitamin D_2 may safely be continued. Any increase above about 12 mg. per hundred cubic centimeters constitutes an indication that administration of vitamin D_2 should be stopped. Inasmuch as subjective symptoms may be totally absent even up to a level of 15 mg., this determination of blood calcium and follow-up should be made in all cases. Usually, symptoms do occur once a level is reached above 15 mg. per hundred cubic centimeters. In any case, subjective complaints in persons with a "less stable nervous pattern" may be voiced at any time, and with any medication, but the yardstick to continue or discontinue medication remains the blood calcium level.

Professor C. M. Hasselmann, M.D., Erlangen, Germany.

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MORRIS FISHBEIN, M.D.

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Acta cardiologica. Brussels.
Acta chirurgica Scandinavica. Stockholm.
Acta clinica belgica. Brussels.
Acta dermato-venereologica. Stockholm.
Acta endocrinologica. Copenhagen.
Acta medica orientalia. Jerusalem
Acta medica scandinavica. Stockholm.
Acta neurologica et psychiatrica Belgica. Brussels.
Acta oto-laryngologica. Stockholm.
Acta paediatrica. Stockholm.
Acta pharmacologica et toxicologica. Copenhagen.
Acta radiologica. Stockholm.
Acta tuberculosea belgica. Brussels.
American Heart Journal. St. Louis.
American Journal of Clinical Pathology. Baltimore.
American Journal of Digestive Diseases. Fort Wayne, Ind.
*American Journal of Diseases of Children. A. M. A., Chicago.
American Journal of Hygiene. Baltimore.
American Journal of the Medical Sciences. Philadelphia.
American Journal of Medicine. New York.
American Journal of Obstetrics and Gynecology. St. Louis.
American Journal of Ophthalmology. Chicago.
American Journal of Pathology. Ann Arbor, Mich.
American Journal of Physiology. Baltimore.
American Journal of Psychiatry. New York.
American Journal of Public Health. New York.
American Journal of Roentgenol. and Radium Therapy. Springfield. Ill.
American Journal of Surgery. New York.
American Journal of Syphilis, Gonor. and Venereal Diseases. St. Louis
American Journal of Tropical Medicine. Baltimore.
American Practitioner. Philadelphia.
American Review of Tuberculosis. New York.
Anales de la Cátedra de patología y clínica de la tuberculosis. *Buenos Aires.*
Anales de la Facultad de medicina. Lima.
Anales de medicina. Barcelona.
Anesthesiology. New York.
Annales chirurgiae et gynaecologiae Fenniae. Helsinki.
Annales pædiatrici. Basel.
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Annals of Internal Medicine. Lancaster, Pa.
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Annals of Surgery. Philadelphia.
Annals of Tropical Medicine. Liverpool.
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*Archives of Dermatology and Syphilology. A. M. A., Chicago.
Archives of Disease in Childhood. London.
Archives françaises de pédiatrie. Paris.
*Archives of Internal Medicine. A. M. A., Chicago.
Archives des maladies du coeur. Paris.
**Archives of Neurology and Psychiatry. A. M. A., Chicago.*
*Archives of Ophthalmology. A. M. A., Chicago.
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Archives of Physical Medicine. Chicago.
*Archives of Surgery. A. M. A., Chicago.
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Archivos argentinos de pediatría. Buenos Aires.
Archivos de pediatría del Uruguay. Montevideo.
Archivos peruanos de patología y clínica. Lima.
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Arizona Medicine. Phoenix.
Arquivos da assistencia a psicopatas do estado de São Paulo.
Bibliotek for laeger. Copenhagen.
Biochemical Journal. London.
Blood. New York.
Brain. London.
British Heart Journal. London.
British Journal of Cancer. London.
British Journal of Dermatology and Syphilis. London.
British Journal of Industrial Medicine. London.
British Journal of Ophthalmology. London.
British Journal of Radiology. London.
British Journal of Surgery. Bristol.
British Journal of Tuberculosis. London.
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Bruxelles-médical. Brussels.
Bulletin of the Johns Hopkins Hospital. Baltimore.
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Canadian Journal of Public Health. Toronto.
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Journal of Nervous and Mental Disease. New York.
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Journal of Neurophysiology. Springfield, Ill.
Journal of Neurosurgery. Springfield, Ill.
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New Zealand Medical Journal. Wellington.
Nordisk medicin. Stockholm.
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This is an index to all the reading matter in The Journal. In the Current Medical Literature Department only the articles which have been abstracted are indexed.

The letters used to explain in which department the matter indexed appears are as follows: "BI," Bureau of Investigation; "E," Editorial; "C," Correspondence; "OS," Organization Section; "ab," abstracts; the star (★) indicates an original article in The Journal.

This is a subject index and one should, therefore, look for the subject word, with the following exceptions: "Book Notices," "Deaths," "Medicolegal Abstracts" and "Societies" are indexed under these titles at the end of the letters "B," "D," "M," and "S." Matter pertaining to the Association is indexed under "American Medical Association." The name of the author, in brackets, follows the subject entry.

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